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THE STATE OF WASHINGTON.

FIRST ANNUAL REPORT

OF THE

Bureau of Statistics, Agriculture and Immigration

ON THE

AGRICULTURAL, INDUSTRIAL AND COMMERCIAL CONDITIONS OF THE STATE.

UP TO AND INCLUDING JANUARY 1, 1896

J. H. PRICE,
Secretary of State and *ex officio* Commissioner of Statistics.

1889

OLYMPIA, WASH.:
O. C. WHITE, - - - STATE PRINTER.
1896.

STATE OFFICERS.

Governor,	J. H. McGRAW.
Lieutenant Governor,	F. H. LUCE.
Secretary of State,	J. H. PRICE.
Treasurer,	O. A. BOWEN.
Auditor,	J. E. FROST.
Attorney General,	W. C. JONES.
Superintendent Public Instruction,	C. W. BEAN.
Commissioner of Public Lands,	W. T. FORREST.
State Printer,	O. C. WHITE.

STATE INSTITUTIONS.

Institution.	*County.*	*Location.*
Capitol,	Thurston,	*Olympia.*
Hospital for the Insane,	Pierce,	*Steilacoom.*
Hospital for the Insane,	Spokane,	*Medical Lake.*
Penitentiary,	Walla Walla,	*Walla Walla.*
University,	King,	*Seattle.*
Agricultural College.	Whitman,	*Pullman.*
Normal School,	Kittitas,	*Ellensburg.*
Normal School,	Spokane,	*Cheney.*
Normal School,	Whatcom,	*New Whatcom.*
Reform School,	Lewis,	*Chehalis.*
School for Defective Youth,	Clarke,	*Vancouver.*
Soldiers Home,	Pierce,	*Orting.*
State Fair,	Yakima,	*North Yakima.*
State Agricultural Exp't Station,	Pierce,	*Puyallup.*
State Agricultural Exp't Station,	Whitman,	*Pullman.*

EXECUTIVE COMMITTEE OF THE WASHINGTON STATE IMMIGRATION ASSOCIATION.

C. L. Webb,	Seattle.
H. Bolster,	Spokane.
E. J. Wight,	Tacoma.
A. S. Cole,	New Whatcom.
E. G. Crawford,	Vancouver.
E. F. Benson,	North Yakima.
Harry Cornwell,	Colfax.

Executive Officers:

C. L. Webb, President and Treasurer.
H. Bolster, Vice President.
Geo. P. Eaton, Secretary.

Headquarters of Association, Seattle.

NATIONAL GUARD.

Governor J. H. McGraw, Commander-in-Chief.	
Brigadier General E. M. Carr,	Seattle, Wash.
Brigadier General F. A. Boutelle, Adjutant General,	Olympia, Wash.
Headquarters First Regiment Infantry,	Seattle, Wash.
Headquarters First Infantry Battalion,	Dayton, Wash.

LOCATION OF GUARD.

Company A, First Regiment Infantry,	Olympia, Wash.
Company B, First Regiment Infantry,	Seattle, Wash.
Company C, First Regiment Infantry,	Tacoma, Wash.
Company D, First Regiment Infantry,	Seattle, Wash.
Company E, First Regiment Infantry,	Seattle, Wash.
Company F, First Regiment Infantry,	New Whatcom, Wash.
Company G, First Regiment Infantry,	Tacoma, Wash.
Company H, First Regiment Infantry,	Vancouver, Wash.
Company A, First Regiment Battalion,	Ellensburg, Wash.
Company B, First Regiment Battalion,	Spokane, Wash.
Company C, First Regiment Battalion,	Walla Walla, Wash.
Company D, First Regiment Battalion,	Waitsburg, Wash.
Company E, First Regiment Battalion,	Pomeroy, Wash.
Company F, First Regiment Battalion,	Dayton, Wash.
Troop A, Cavalry,	North Yakima, Wash.
Troop B, Cavalry,	Tacoma, Wash.
Battery A, Light Artillery,	Spokane, Wash.

STATE OF WASHINGTON,
BUREAU OF STATISTICS,
OLYMPIA, WASH., May 1, 1896.

To His Excellency JOHN H. McGRAW,
Governor of Washington:

SIR—I have the honor to transmit herewith the first annual report of the bureau, as provided for by chapter 85, Session Laws of 1895.

Very respectfully,

J. H. PRICE,
Secretary of State and ex officio Commissioner of Statistics.

INTRODUCTORY.

The Bureau of Statistics, Agriculture and Immigration respectfully submits its first annual report of information and data collected, as required by section 4, chapter 85, Session Laws of 1895, which provides that "the Commissioner of Statistics is hereby directed to prepare for immediate publication, from the reports of the county assessors, chambers of commerce, boards of trade and other authentic sources, a comprehensive report, setting forth the geography, topography, climate, natural and artificial resources of Washington," etc.

The bureau has found it very difficult to gather the information intended to be embraced in this report, and manufacturers have been found especially unwilling to give information regarding their establishments. In most cases the blanks furnished by this bureau were received and promise was given that the matter should receive early attention. But only in a very few instances were the schedules filled out; they were often lost or mislaid, and others had to be sent, and it has been only after frequent applications in person and by letters that most of the information has been obtained.

The law which created this bureau makes the giving of all information called for by the commissioner obligatory, and provides for the fining of those who refuse to give the information called for "of not less than fifty nor more than two hundred dollars." It has not been deemed advisable to invoke the majesty of the law in any case. Statistics are only reliable when they are approximately exact, and it would be almost as difficult to compel an individual to give an exact statement in regard to his business affairs as it would be to compel him to tell what he was thinking about at any given time. The correctness of statistics of a person's private business is in a great degree dependent upon such person's willingness to divulge the required information. This must always be the case unless the power that exacts the information proposes to take possession of the books of the parties it questions—a proceeding which would be esteemed a tyrannical and unwarranted invasion of private rights.

The object in view by the legislature in directing the issue of this report was particularly in the interest of immigration; to invite industrious, enterprising, intelligent people to remove hither. I think that the pages which are to follow will justify the assertion that no part of the American continent now undeveloped offers such inducements to the capitalist and the homeseeker as does the State of Washington.

The worst that can be said against Washington is that she lacks population, and it must be apparent that if that is a fault it is chargeable not to those who are here but to those who fail to come.

It is remarkable that men will undergo the hardships of life in the older states when there are such opportunities in new countries. There are large tracts of land in Washington now devoted to pastureage where crops of grain, hay or fruit could be raised profitably. There are hundreds of thousands of men wearing their hands to the bone upon some of the stony land of New England to raise barely enough to give their families a scanty living who, with the same energy, intelligence and capital, would soon accumulate a competence in Washington. Other hundreds of thousands living in squalor in the big cities could find plenty to do in the hundreds of valleys here if they could be broken loose from their surroundings.

THE STATE OF WASHINGTON.

Washington is the most northwestern of the states of the union. Excepting Alaska it is farthest northwest of United States territory. Originally a part of the "Spanish Possessions," the northern boundary of which was not defined until some years later, the territory now designated as Washington narrowly escaped falling into the hands of the British, through claims set up by the chartered Hudson's Bay Company, which had established a trading post at Vancouver near the southwest corner of the now state, and prepared to lay claim to the territory in the name of the British Crown.

The first white settlement by Americans was in 1836, when that historical missionary, Dr. Marcus Whitman, settled in the Walla Walla country and other missionaries went among the Indians of the Spokane country, near the boundary later established between the territories of Washington and Idaho.

It was in 1844 that the first settlers invaded the forests of Western Washington. They were neither traders nor missionaries, but pioneers who with their families went out upon the frontier to erect homes and carve out from the wilderness a commonwealth. Michael T. Simmons, a native of Kentucky, led the van. He, with his companions, might have settled south of the Columbia but for the over-anxiety of the British traders at Vancouver that they should do so. This determined them to push to the north, and they founded a settlement on Budd's Inlet at the head of Puget Sound, the present site of the village of Tumwater, within two miles of the now capital of the state.

The history of the struggles and manly triumphs of those early pioneers, their combats with Indians, their hardships and privations, accessions in numbers and founding of industries, and their triumphal march to first territorial existence, which was accomplished by act of congress March 2, 1853, when settlement within the territorial limits embraced but 3,965 people, apart from tribal

Indians, of whom 1,682 were voters, the rise of the territory through more than 36 years of territorial struggle to the final triumph of statehood, which was bestowed by act of congress approved February 22, 1889, and finally consummated in the convening of the first state legislature which assembled November 11, 1889; the story of this would make a chapter of the deepest interest, but must here be passed with only a recital of the fact that such events mark our early history.

FORM AND BOUNDARIES.

In form Washington is a broad parallelogram, presenting on the map a form not unlike that of a great teakettle with broad snout and uneven bottom. Her west front on the Pacific is 170 miles, from the mouth of the Columbia river at the southwest corner of the state to the entrance of the Strait of Juan de Fuca, which separates Washington from Vancouver Island, a British possession, north. This strait, 20 to 40 miles in width and carrying the depth of the open sea, describes a semi-circle projecting south of west to Puget Sound, a distance of 95 miles. The inner shore line of Puget Sound carries the boundary line north, inside Vancouver Island, to the 49th degree north latitude, whence that degree serves to separate Washington from the mainland of British Columbia to a point 240 miles eastward. Thence due south extends the line dividing Washington from Idaho, to the 46th parallel, thence west along the line of this degree of latitude to the point east of the south center of the state where the Columbia river is overtaken in its course to the sea, from whence the channel of the Columbia forms the boundary between Oregon and Washington to the point of beginning.

Within the boundaries thus outlined are embraced 69,994 square miles of territory. Washington is as large as all New England, with Delaware included; more than three-fourths as large as combined New York and Pennsylvania, or about the equal in size of both Ohio and Indiana. The estimated total acreage of lands is 44,796,160.

The surface of the state is separated into two great natural divisions by the Cascade range of mountains extending from north to south, placing about two-thirds of the total area of the state in the eastern division.

EASTERN WASHINGTON.

As one great whole, this may be termed the valley of the Columbia, for the entire surface of this eastern division is drained by the Columbia river and its numerous tributaries. Yet the contour of the country differs greatly in the several localities of this vast district.

The Columbia river, rising in British Columbia, enters Washington across her northern boundary but a few miles west of the northeast corner of the state. The main course of this mighty river is west of south to nearly half way down from the north, when it swings a majestic bend to the west, northwest, south and southeast, here reaching the 46th degree, swings south in its westward course to take a great mouthful from Oregon's territory to set over into Washington, finally finding its outlet to the Pacific a little north of the 46th parallel. On her course through the state she is joined by many rivers and lesser tributaries on either side. Beginning at the north and following down on the east side in the order named are Pend d' Oreille, Colville, Spokane, Palouse, Tukannon, Snake and Walla Walla as the principal tributaries; on the west, from north down in like order, are the Okanogan, Chelan, Wenatchee, Yakima and Klickitat rivers. These, with their tributaries and the many smaller streams entering the Columbia direct, water and drain this entire district, which, to describe intelligibly, must be subdivided into smaller districts, or, in the vernacular of the locality, "countries."

The northern portion, embracing about one-third of the Columbia river district of Washington, is broken. It may almost be said to be mountainous. A great part of this division is timbered. Timber borders all the streams, and a large part of the country's expanse. Subdividing this section, we have two of the largest counties in the state, Stevens and Okanogan. Considerably less than one-half the area of Stevens is timbered, but toward the main range of mountains—the Cascades—the timber increases until more than one-half of Okanogan is timbered. The predominant timber is bull pine, with some spruce and tamarack, and less of cedar. Along the bottoms, or bordering the immediate channels of the streams, are found cottonwood, alder and willow.

The valley lands and prairies of this portion of the state are productive, and the climatic conditions favorable to fruit culture, while the hills and table lands afford excellent pasturage for stock. This portion of the state is, too, rich in mineral stores. The largest fresh water lake in the state, Lake Chelan, is in Okanogan county, extending from northwest to southeast at right angles with the course of the Columbia in which it finds its outlet. The lake is long and narrow, its waters being navigable the entire length. Its area is 65 square miles.

South of the district above described is the Spokane country on the east, and west of it the Big Bend country. The former is similar in character to that lying north, but less broken in contour and with less timber. West from the eastern border of the state the hills give place to an expanse of plain, upon the bosom of which are numerous small lakes. This is an elevated plateau, being nearly 2,000 feet above sea level.

The Big Bend country, as the name indicates, is embraced within the great bend of the Columbia river. It is a vast range of hill and dale, rich in agricultural possibilities. It is the pioneer stock range of Washington, its native herbage being chiefly the nutritious bunch grass.

The Kittitas valley, across the Columbia from the Big Bend country and bearing to the south, is so close to the Cascade mountains as to come within the arid region, the mountains robbing it of its just quota of rainfall. It is an elevated valley, being some 1,500 feet above sea level. Its soil is composed of volcanic ash and vegetable mould, being light in appearance but remarkably productive under the stimulus of irrigation, to which the country here is admirably adapted.

The Yakima country, south and east of that last described, is lower in altitude by 500 feet, being scarcely a thousand feet above sea level. It is similar in appearance and general character. It is of vast extent. The geological structure is in many respects similar to ancient lake-beds in states further east, and it is supposed that a great portion of this valley was formerly a vast lake basin. The soil, though bearing sage brush in its native state, possesses all the characteristics of a lacustrine deposit of great depth and fertility. The surface being a slight slope, adapts it well to reclamation under irrigation. The story of its development and productiveness is well told elsewhere.

The Walla Walla country, being further east and south, is further removed from the mountain range and consequently enjoys a greater rainfall. Its altitude is about the same as the Yakima, 1,000 feet, and its soil of similar character. Its surface is marked by gentle undulations and level plains. Bunch grass and sage brush grow in the virgin soil, and where cultivated it produces large crops of excellent grain, luscious fruits and succulent grasses.

The Palouse country, north of the Walla Walla and south of the Spokane, is more undulating than the former and less so than the latter. Its valleys are deep and wide and its plateaus broad, level and fertile. Its soil, both upland and vale, is deep, strong, productive. This is the home of the wheat field, and equally the home of the fruit tree. The rainfall is sufficient to propagate the crops without the aid of irrigation.

Eastern Washington has no marshes, no stagnant waters, and hence no local causes for miasmic or kindred diseases, and none exist. Her climate is dry, and while the sunshine inspires vegetation to prolific growth, the mountains hold up their lofty heads in caps of snow on either hand and the breezes from these temper the atmosphere of summer to prevent excessive heat, while the influence of the oceanic Japan current on the west is sufficient even here to prevent extreme cold in winter.

THE MOUNTAINS.

The Cascade mountains differ from any other range of mountains in the United States, in that they are taller, more majestic in their overtowering grandeur, deeper and darker in their great gorges, and more heavily timbered at their base. They extend from north to south across the state, and the division they effect between the two great portions of the state thus separated the one from the other, differ as widely in general character, contour, native herbage, climate and soil as though the ocean rolled between them. While this range is continuous, the fact has been established that it is by no means impenetrable by the avenues of commerce. In the course of the range there are at least twenty openings or passes, any one of which has an altitude at its summit of less than 5,000 feet. The accessibility of these for highways of travel is governed by the character of their approaches. Natches pass, south of the state's center, was used as a highway as early as 1853 and in 1854 it was opened by the United States government as a military road. Snoqualmie pass, elevation 3,110 feet, is near the state's center and has long been open as a highway. The legislature at its last session appropriated $30,000 to build a road through one of the passes on the Skagit district of the range in the north part of the state, leaving the selection between Slate creek, Thunder creek and Cascade passes to a commission. Stampede pass, altitude 3,980 feet, is used by the Northern Pacific Railway for its crossing over the range, and the Great Northern Railway crosses the range *via* Stevens pass at an altitude of 4,068 feet.

The prominent heights of this mountain range are as pronounced in their respective altitudes as the passes are modest. Instead of towering up as crowning eminences of the main range, they rise from the more humble surroundings of lower levels on either side, as if to emphasize each his own peculiar grandeur. Thus Mount Baker, furtherest north, is many miles to the west of the main range, and lifts its snow-capped head to an altitude of 10,827 feet. Mount Rainier (called also Mount Tacoma), also far west of the range to which it belongs, rises to the commanding height of 14,444 feet. This is the pride of the state, and is the third highest peak in the union, though it concedes first place to none other in grandeur, sublimity and massive beauty. It is volcanic in formation, but centuries have quieted the impulses of youth, and the snows of ages have crowned Rainier-Tacoma with the pall of eternal rest. The Frenchman, Italian and Swiss each see in it a semblance of their native peaks. To the Japanese it presents the counterpart of his own sacred mount, Fusigama, and to the artist it is a perpetual inspiration. To the south from Mount Rainier-Tacoma stands Mount St. Helens, 9,750 feet, in feminine grace attesting the sturdy grandeur of her superior. By her side, to the west and south, stands Mount Adams, 9,570 feet, only less beautiful by the contrast presented.

In the extreme western portion of the state is a lesser range of mountains known as the Olympics. This is a much shorter range and of lower altitudes. Instead of paralleling the Cascades, the Olympics strike from northwest to southeast, conforming to the course of the Strait of Fuca, about equaling that waterway in length, and only removed from it to such distance as admits of a broad table of land intervening.

WESTERN WASHINGTON.

A natural division of this vast section may be made near the head (south) of Puget Sound. The division north of such line may be described as a vast basin between two ranges of mountains. Puget Sound which, by the way, is not a sound but a deep salt sea inlaid with numerous islands and by them divided into many channels, all navigable for ocean going vessels, forms the base of this division. The head of this sea is some eighty miles north of the entrance to it of the Strait of Fuca, and about forty miles to the north of that entrance, where the American mainland possessions are joined by those of the British, its waters are merged with those of the Gulf of Georgia. The mainland bordering this sea and spanning from mountain to mountain, is made up of mountain spurs, table lands, river valleys, and fresh-water and tide-water marshes and deltas. Of these all, save marsh and delta, are timbered with unbroken forests, the higher altitudes growing fir, hemlock and spruce; table lands, fir and spruce; valleys, fir, cedar, spruce, cottonwood, maple and alder. This timber is surpassed in size only by the redwood forests of California. The valley lands bordering the rivers and creeks innumerable are for the most part very rich and productive, especially in vegetables, fruits and succulent grasses, and the forests of these valleys are fast breaking before the woodsman's ax and the farmer's pick, shovel, and finally plow. The uplands have been invaded but little, but where the forests are felled rich pasturage follows and in many places great veins of coal are found to underlie the surface or strike into the hillside. Marsh lands and deltas in their native state are overgrown with brush. They are easily cleared and reclaimed from overflow by dikes and ditches, when they produce the greatest tonage of fine hay, the most prolific yields of oats, heavy hops, nice vegetables and fine orchards.

Numerous islands inlay Puget Sound, two entire counties in this district being composed wholly of islands. These embrace thousands of acres of the choicest fruit lands. Whidby, the largest of these islands, is 35 miles in length and constitutes the greater part of Island county, while the San Juan group, comprising the county of that name, embraces a number of islands that are more nearly of equal size.

About the head of Puget Sound, and off to the south from it, the timber is of the same character but of less marvelous growth, and the forests are broken by numerous small prairies. The soils of these prairies are frequently gravelly, yet a great part is a loam warmed with a generous intermixture of sand, and grows fruits, vegetables and field crops in perfection. Further south the rivers have uninterrupted flow from the Cascade range to the ocean; and still further south the flow is toward the Columbia river. Here again we find heavy timber of the same nature as that growing in the north of the state, and prairies still, but less frequent than about the head of the Sound, though averaging larger. This is the older settled portion of Western Washington, and the excellence of this portion of the state for horticulture and agriculture is here thoroughly demonstrated. The many valleys are thickly peopled, as are the prairies and timbered plateaus, and all are found to be abundantly productive.

West, north and south of the Olympic range numerous valleys obtain, all rich in agricultural productiveness. This portion of the state also is covered with unbroken forests of massive timber, all carrying an immense value commercially, and affording the base for immense lumbering industries.

Lumbering, ship building, fishing and coal mining, with horticulture, agriculture and commerce, contribute greatly to the development of this portion of the state and combine to give assurance to the support of a dense population.

NAVIGABLE WATERS.

The state is remarkably blessed with navigable waters. With the ocean coast and inlets at Willapa and Grays harbors, the Strait of Fuca and Puget Sound she has 1,092 miles of shore washed by the ebb and flow of the tide, with harbors for anchorage unexcelled in the known world. All the tidal rivers entering the ocean and Puget Sound are navigable for distances varying from five to forty miles inland. Lake Washington, covering an area of 41 square miles, is navigable, as is also Lake Whatcom, of lesser size.

In Eastern Washington the Columbia is navigable from Rickey's Landing, near Grand Rapids, to a point two miles above Fort Spokane, a distance of about 60 miles; from Wenatchee to Chelan Landing, about 30 miles; from Ainsworth, at the mouth of the Snake, to The Dalles, barring 16 miles of portage, and from The Dalles to Cascade Locks, now being opened to navigation, which will open this waterway to navigation to the sea. Snake river is navigable from Riparia to Lewiston, Idaho — 65 miles, and Lake Chelan is navigable its entire length — 70 miles. The Okanogan and perhaps other rivers are navigable on high stages of water, that named being known to be for a distance of 25 miles from its juncture with the Columbia.

The foregoing will suffice to establish Washington's general claim to recognition as among the greatest of the newer states. What follows will be found to prove in detail the general claims hereinbefore set forth, and if this general description of the state will help the reader to a better comprehension of the state as it is treated, part by part, our aim herein will have been accomplished.

CLIMATE OF WASHINGTON.

It would be futile to attempt any description of the climate of the State of Washington as a whole; its climatic conditions vary so widely that to say the mean annual temperature of the state is 49°, the average yearly precipitation 38.36 inches, the highest observed temperature 112°, and the lowest observed —30°, and that the prevailing winds are westerly, is to give a very imperfect and inadequate idea of the weather that prevails in different parts of the state.

Throughout the state, except in the extremes of summer and winter, there is a surprising uniformity in the temperature, and therefore will make no distinction for the different sections based upon temperature; but, owing to prominent physical features, there is great diversity in the different localities as to the amount of atmospheric moisture, and this, according to the different degrees of moisture, will be the basis of classification.

The most apparent fact of atmospheric moisture is rainfall, including snow in winter. Looking over the weather records of Washington for a number of years, we discover a grouping of the annual rainfall totals. It is easy to see at a glance that everywhere west of the Cascade chain of mountains the total precipitation is greatly in excess of that east of the mountains, so much so that the mountain chain is an evident cause of this noticeable difference in rainfall, and a division is easily made into Eastern Washington with a dry climate, and Western Washington with a wet climate. This is the distinction usually made, and yet, although very convenient and not erroneous, it is hardly precise and accurate enough to suit careful study and consideration.

In Western Washington, meaning all west of the Cascades, it is not difficult to distinguish two sections varying widely in the amount of precipitation, which are separated from each other by the Olympic and Coast Range mountains; and in Eastern Washington we can also distinguish two sections, one consisting of Franklin, Adams, Lincoln, Douglas, the eastern part of Kittitas, Yakima and Klickitat counties, and the other the remaining portion of the state east of the Cascades.

In Western Washington the strip of land bordering on the Pacific coast and extending back as far as the summit of the first mountain ranges, has a *wet* climate; the precipitation reaches from 80 to 120 inches annually. The region between the Coast range and the Cascades has what may be termed a *moist* climate, varying in the amount of annual precipitation from 30 to 60 inches. In Eastern Washington the great plains of the Columbia, embracing the counties before named, has what may be called a *very dry* climate, its total annual precipitation varying from 6 to 15 inches. In the remaining portion of the eastern section, embracing an irregular ring about the previous section, the rainfall varies from 15 to 25 inches annually, and its climate may be said to be *dry*.

A lack of the above careful division has caused Washington climate to be absurdly misconceived in the minds of many who have only glanced at some of the extremes and come to the conclusion that the state is, on the one hand, deluged with rain, or, on the other hand, almost rainless. The former impression could be got from noting only the heavy annual rainfalls of Tatoosh Island, Neah Bay, Lapush, Aberdeen, South Bend and Fort Canby, all on the Pacific coast; yet they are no criterion for the greater and more thickly settled part of the state. The latter impression of extreme dryness would readily be got from examining only the rainfall reports of Ellensburg, Kennewick, Davenport and Connell, all located in the plain of the Columbia. Yet such an impression would be highly erroneous, viewing the state as a whole. Throughout considerable of Eastern Washington the precipitation is nearly equal to that of Minnesota, while on the eastern border of Puget Sound, and the shores and islands to the northward, the precipitation is not greater than in the Ohio valley.

The bulk of the rainfall occurs, it is true, during a well defined wet season, from October to May; but the remaining months are not entirely dry; on the contrary, there are frequent and copious showers. The snowfall is only heavy in the mountains, and only there does it remain long upon the ground.

The temperature in the eastern and western sections differs not so much in the annual means, as in the extremes, or the range between summer's heat and winter's cold. In Eastern Washington there are many hot summer days, the temperature reaching sometimes 100°, 105°, or, in rare instances, 110° in the shade; while in Western Washington, during the same hot spells, it only reaches 85°, 90°, or 95°. During cold spells in winter, while in Eastern Washington temperatures of 5°, 10°, or 25° below zero may be reached, only very rarely in Western Washington does the thermometer descend to zero, and never goes far below. The immediate coast enjoys an equable temperature, the climate being *marine.* As examples of localities within the United States which enjoy typical marine climates may be given Tatoosh Island, San Francisco and San Diego. The range between monthly mean temperatures at Tatoosh is 8°, at San Francisco 9°, at San Diego 15°. In the Sound region the range is not so small; still, at Seattle it is only 25°. This is small in comparison with the range at many interior points of the United States, which is as high as 50 or 70 degrees. The region between the coast range and the Cascades has a mild winter climate, and summers with but few hot days. Over the whole region east of the Cascades some pretty cold days may occur in winter and some very high temperatures in summer. The dryness of the climate, however, renders the heat easily endured.

It is instructive to compare the monthly mean temperatures of the winter and summer months in Eastern and Western Washington, respectively: Comparing December, January and February, we have for the mean values in the eastern section, December 32.2°, January 27.1°, February 29.6°; for the western section, December 40.9°, January 38.3°, February 37.9°. Comparing June, July and August, we have for the eastern section, June 61.8°, July 69.2°, August 70.3°; for the western section, June 56.7°, July 60.7°, August 61.5°.

To the new-comer the unexpected warm winter of the Washington coast or Sound regions is a genuine surprise, especially to one who has lived in the same, or even a lower, latitude in some part of the country east of the Rocky mountains or east of the Mississippi. He contrasts the mildness of the winters with the severity of those he has formerly experienced, and can hardly account for the difference and for the absence of blizzards and severe cold waves.

This uniformity and equability of temperature is due to the fact that the prevalent winds are from off the Pacific ocean. As is well known, on account of that peculiar property of water which gives it a high "specific heat," the temperature of the sea changes but little, and winds blowing from off the ocean bear its temperature with them. The effect is intensified on the Washington coast, because the part of the Pacific ocean contiguous is traversed by the warm Japan current. The conditions are therefore very similar to those of Western Europe and the British Isles, where the prevailing winds blow from over the warm Gulf stream. The warmth and moisture cause grass, flowers and various kinds of vegetation to grow the winter through, and only as the mountains are approached is snow found remaining on the ground for more than a few days.

That the same cause which makes the winters mild and warm should make the summers mild and cool savors of the paradoxical, yet it is strictly true; namely, the blowing of the winds from off a large body of water which has a great specific heat, and cannot, therefore, be overheated like a large body of land. Therefore, very few hot days occur in summer, being those on which the wind for any reason blows from a different direction than the prevalent one.

The winters of Eastern Washington are not rigorous, as some of the low temperatures on record might indicate, but, on the contrary, those very low temperatures are exceptional. They occur only when the winds are north or northeast. The westerly and southwesterly are the so-called "Chinook" winds. They are warm, balmy and dry, causing any snow on the ground to disappear; not melting it into water, but causing a great part of it to evaporate directly. This peculiarity, though in some respects agreeable, is regarded by some close thinkers as detrimental to agriculture, for it would probably be better for the soil if the snow melted and soaked into it, than to be evaporated and carried away in the air currents. But such a disadvantage, if it really is one, is greatly overbalanced by the immunity the "Chinooks" afford from the tedium, discomfort, and perhaps damage, of long and severe cold spells. To describe the "Chinook," or explain it, would be greatly beyond the bounds of this article. It is a very peculiar phenomenon in its origin, and the "Chinooks" of different localities seem to vary widely in some of their minor characteristics. The "Chinook" is probably a south to west wind westward of the Cascades, and is both warm and moist; on the eastward side of those mountains it becomes a *foehn* wind, blowing from southwest, west, or northwest, and is both warm and dry. To the inhabitants of Eastern Washington, as well as Idaho, Montana, North Dakota and the Northwest Provinces, it comes as a welcome visitor after a sharp cold spell.

The short summers of the eastern section contain quite a number of days during which the thermometer rises at some points to the 100° mark and above; but this temperature is not so oppressive as it would appear to the dwellers near the Atlantic coast. The reason for this is that the air over the great plateau region, of which Eastern Washington forms a part, is so dry that evaporation takes place at a very rapid rate. This has a decided effect in lowering the temperature experienced by the human body, the "sensible temperature," as it is called, being several and sometimes many degrees lower than that indicated by the thermometer. More explicit and detailed information than that given in the foregoing can be gained by a study of the accompanying tables, giving the temperature and rainfall normals of the different sections of Washington, collected from weather bureau and voluntary observers' records, covering periods varying from two to twenty years. Some counties are represented by but one station each, and, unfortunately, a few counties have no records, or but fragmentary ones. An effort has been made to choose characteristic stations and obtain the truest possible normals; this has been nearly accomplished where the records embraced several years and were continuous. The records were brought to the close of the year 1895.

TEMPERATURE AND PRECIPITATION EASTERN COUNTIES OF WASHINGTON.

County.	*Locality.*	*General elevation cultivated portions*	*Length of record in years*	*Number of stations*	TEMPERATURE.			PRECIPITATION. (Rain and melted snow, inches and hundredths.)		
					Mean annual	*Highest on record*	*Lowest on record*	*Average annual*	*Summer average*	*Winter average*
Adams*	"Big Bend"	....	.....	.....	....	....	....	....	....	....
Asotin*	Snake R. val	....	.....	.....	....	....	....	....	....	....
Columbia	Snake R. val	1,685	6	1	49.1	109	—15	27.77	9.12	18.65
Franklin	Snake R. val	....	2	1	....	112	—1	9.70	....	....
Garfield	Snake R. val	1,600	4	1	52.1	100	—2	13.93	5.80	8.13
Kittitas	Upper Yakima	....	6	3	45.8	102	—14	8.60	3.20	5.40
Klickitat	Col. R. val	....	3¼	2	49.1	104	—5	19.04	....	....
Lincoln	"Big Bend"	1,600	10	1	47.4	105	—31	13.06	....	....
Okanogan	North	985	4	2	49.3	98	—15	11.32	4.67	6.65
Spokane	East	1,900	14	1	47.5	102	—30	17.94	6.77	11.17
Stevens	North	....	2	1	40.8	91	—10	18.12	5.77	12.35
Walla Walla	Snake R. val	930	10	1	53.1	108	—17	16.80	5.96	10.84
Whitman	"Palouse"	....	5	3	46.0	98	—19	18.21	6.73	11.48
Yakima	Yakima val	1,300	7	3	51.6	112	—22	9.45	....	....
Douglas	"Big Bend"	2,400	5	2	47.4	104	—30	12.70	....	....

*No records.

TEMPERATURE AND PRECIPITATION WESTERN COUNTIES OF WASHINGTON.

County.	*Locality.*	*General elevation cultivated portions*	*Length of record in years*	*Number of stations*	TEMPERATURE.			PRECIPITATION. (Rain and melted snow, inches and hundredths.)		
					Mean annual	*Highest on record*	*Lowest on record*	*Average annual*	*Summer average*	*Winter average*
Chehalis	Coast	Below 500 feet.	5	1	49.8	94	10	85.45	25.30	60.15
Clarke	Col. R. val		19	1	52.1	....	....	37.93	10.00	27.93
Clallam	Str. and coast		12	4	48.2	88	—1	80.20	....	....
Cowlitz*	Col. R. val		.....	.....	....	....	....	....	....	....
Island†	Lower Sound		.....	1	....	....	....	....	....	....
Jefferson	Coast		18	1	49.6	89	—3	22.42	10.57	11.85
King	East bord. Sd		5	2	51.4	94	3	36.78	12.21	24.57
Kitsap	West bord. Sd		18	1	51.0	90	....	44.01	....	....
Lewis	Chehalis R. val		5	3	49.6	101	2	43.84	....	....
Mason	West bord. Sd		3	1	49.4	95	18	72.52	....	....
Pierce	East bord. Sd		10	2	50.4	99	5	39.69	....	....
Pacific	Coast		13	2	50.7	102	11	62.18	....	....
Skagit	North		2	1	....	....	....	32.36	....	....
Skamania	Col. R. val		3	1	51.5	....	....	58.07	....	....
San Juan	Strait Archi		5	2	49.4	91	—6	30.22	....	....
Snohomish	East bord. Sd		2	2	48.0	89	15	36.02	....	....
Thurston	South. point Sd		18	2	50.1	97	—2	47.44	....	....
Waukiakum*	Col. estuary		.....	.....	....	....	....	....	....	....
Whatcom	North		2½	2	47.8	92	9	44.30	....	....

*No records. †Only three months record.

Stations.	*County.*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May.*	*June.*	*July.*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Annual.*
Aberdeen	Chehalis	10.89	5.00	6.95	7.93	7.27	0.63	0.90	......	......	0.30	9.18	28.08	77.13
Anacortes	Skagit	2.82	3.24	1.34	2.80	0.82	1.14	0.20	0.26	......	......	2.86	6.12	21.60
Ashford	Pierce	7.05	2.88	3.69	4.48	6.55	1.64	......	0.10	3.27	0.53	7.45	13.10	50.74
Blaine	Whatcom	6.97	7.20	2.81	2.58	3.53	2.00	0.14	0.40	4.62	0.48	4.82	6.88	42.43
Bridgeport	Douglas	1.75	0.20	0.10	0.51	0.95	T.	0.05	......	......	......	......	......	3.56
Cascade Tunnel	Kittitas	13.04	7.23	4.20	4.08	6.52	1.32	0.49	0.05	5.64	......	......	16.50	59.07
Centerville	Klickitat	3.85	0.70	0.08	0.52	0.98	......	0.32	......	......	0.01	1.05	......	7.51
Connell	Franklin	0.03	......	......	......	......	......	......	......	......	......	......	......	......
Colfax	Whitman	3.31	0.98	0.91	0.51	1.63	0.30	0.71	0.03	1.55	T.	2.24	3.22	15.39
Dayton	Columbia	......	......	......	1.12	......	......	......	0.09	1.68	......	2.85	......	......
East Sound	San Juan	3.36	1.86	1.05	1.48	1.91	......	0.24	0.34	1.36	0.56	3.83	6.73	22.22
Ellensburg	Kittitas	2.37	0.25	0.02	0.18	0.62	T.	T.	T.	0.98	......	0.20	2.25	6.87
Fort Simcoe	Yakima	6.15	0.40	0.60	0.20	0.67	T.	......	......	1.65	......	0.66	2.81	13.14
Fort Spokane	Lincoln	1.52	0.21	0.01	0.56	0.76	T.	0.05	......	0.14	0.03	0.49	1.36	5.13
Grand Mound	Thurston	8.83	1.71	3.39	2.89	5.59	0.19	0.19	0.01	1.88	0.14	5.77	13.09	43.68
Huntees	Stevens	3.33	0.87	0.79	2.22	3.66	0.59	0.48	T.	2.12	0.02	0.96	1.45	16.49
Index	Snohomish	13.91	8.35	8.40	5.41	......	......	......	......	......	......	......	......	36.07
Kennewick	Yakima	1.35	0.18	0.03	0.11	0.54	......	T.	0.08	0.78	......	......	......	3.07
Lakeside	Okanogan	2.40	0.30	0.27	0.74	0.65	T.	T.	......	0.75	......	0.54	2.25	7.90
Lapush	Clallam	9.50	7.40	9.85	9.73	5.49	1.66	......	......	4.90	1.20	9.59	15.76	75.08
Lyle	Klickitat	7.21	0.83	1.84	0.69	2.25	T.	0.40	0.12	1.15	T.	1.66	9.25	25.40
Madrone	Kitsap	6.61	1.96	4.46	3.82	5.64	0.21	0.64	0.20	1.10	0.02	2.67	9.49	36.82
Mayfield	Lewis	8.09	2.21	5.05	4.68	7.49	0.89	1.08	0.53	......	......	......	13.62	43.64
Monte Christo	Snohomish	......	......	9.39	9.60	11.74	2.24	2.20	0.71	11.45	1.70	10.92	28.14	88.09
Moxee	Yakima	4.89	0.29	0.02	0.39	0.45	T.	0.01	T.	0.51	......	0.21	0.42	7.19
New Whatcom	Whatcom	......	......	......	......	......	......	0.04	0.85	3.70	0.64	3.68	4.26	12.67
Olga	San Juan	2.84	2.96	0.99	1.45	1.56	1.07	0.17	0.23	1.62	0.69	3.87	6.97	24.42
Olympia	Thurston	9.85	2.77	4.47	4.46	5.93	0.05	0.35	T.	1.56	......	......	14.96	44.40
Pomeroy	Garfield	......	......	......	0.59	1.55	0.11	0.30	0.14	1.56	......	0.87	2.22	7.34
Pullman	Whitman	4.06	1.35	0.69	0.83	2.12	0.19	......	......	......	......	2.54	3.22	15.00
Rosalia	Whitman	2.57	1.31	0.61	0.61	2.22	0.37	0.23	T.	2.02	0.01	1.52	2.22	13.69
Silver Creek	Lewis	7.73	2.22	4.31	4.47	7.13	1.18	0.98	0.55	3.17	0.31	6.67	12.91	51.63
Snohomish	Snohomish	5.38	3.01	4.29	3.25	5.81	1.39	1.09	0.32	1.75	0.46	2.63	7.44	36.82
South Bend	Pacific	......	......	8.08	11.39	8.29	0.53	1.50	0.10	2.23	1.07	6.60	......	39.79
Stampede	King	9.52	3.33	3.33	3.89	4.50	1.02	1.23	0.08	......	......	......	......	26.90
Stillaguamish	Snohomish	4.38	3.51	3.96	2.51	4.72	0.81	0.30	0.25	2.17	0.21	5.16	4.15	32.13
Sunnyside	Yakima	2.11	0.13	0.01	0.06	0.72	......	0.11	......	0.73	......	0.33	0.78	4.98
Tacoma	Pierce	7.36	2.51	2.64	2.29	4.61	0.20	0.39	0.05	1.22	0.14	4.79	10.85	37.05
Union City	Mason	12.25	4.09	6.98	7.85	7.34	0.28	0.88	0.03	1.20	0.27	6.92	17.27	65.36
Vashon College	King	5.30	2.17	3.70	2.28	4.08	......	0.35	0.13	1.82	0.02	4.38	12.85	36.03
Waterville	Douglas	2.56	0.50	0.50	......	1.04	......	......	T.	1.16	......	0.20	2.75	8.71
Wenatchee Lake	Okanogan	2.40	......	1.04	0.50	0.80	......	0.10	......	......	0.03	......	......	4.87
West Ferndale	Whatcom.	3.34	3.79	1.79	3.03	2.67	1.17	0.12	0.29	4.50	0.67	5.54	5.48	32.39
Fort Canby	Pacific	11.52	......	5.42	6.16	8.19	0.71	0.80	0.25	2.34	0.31	7.70	14.17	57.57
Port Angeles	Clallam	5.91	1.32	1.40	1.77	1.55	0.19	T.	0.44	0.35	0.15	3.04	7.95	24.07
Tatoosh Island	Clallam	12.50	9.02	10.43	9.02	7.12	2.38	2.19	1.81	5.76	1.32	8.86	22.44	92.95
Spokane	Spokane	3.04	0.82	0.57	0.79	1.58	0.42	0.42	0.03	1.84	T.	1.96	2.49	18.46
Walla Walla	Walla Walla	2.52	0.55	1.17	1.23	2.31	0.04	0.50	0.23	2.13	......	1.67	2.54	14.89
Seattle	King	6.13	1.76	3.60	3.17	3.20	0.29	0.37	0.21	1.01	0.02	1.95	7.98	29.69
Neah Bay	Clallam	12.44	10.37	13.09	11.11	10.77	3.12	2.40	1.37	0.45	1.27	11.55	23.88	101.82

MONTHLY TEMPERATURE, 1895, WASHINGTON STATIONS.

Stations.	*County.*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May.*	*June.*	*July.*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Annual.*
Aberdeen	Chehalis	38.6	45.5	45.7	49.0	51.6	58.0	61.0			55.2	42.4	41.2	48.8
Blaine	Whatcom	33.1	41.3	42.3	42.2	53.2	59.3	60.6	58.6	51.2	40.1	39.8	36.4	47.0
Bridgeport	Douglas	22.5	28.6	43.4	53.5	56.8	62.2	64.8	68.4					
Cascade Tunnel	Kittitas	25.6	32.2	31.7	40.3	45.2	54.2	56.3	57.6	47.3	47.0		29.6	42.5
Coupeville	Island										49.8	43.7	41.6	
Centerville	Klickitat	26.0	37.4	41.6	50.7	55.0		65.3	65.9		51.1	38.3		
Connell	Franklin	43.3	42.0	46.3				73.2	71.0	57.6		46.2	44.6	53.0
Colfax	Whitman	29.0	37.5	39.4	49.8	53.8	58.8	63.8	63.6	52.4	49.1	38.4	32.0	47.3
Dayton	Columbia				53.0				69.3	54.8	51.3	38.7		
Ellensburg	Kittitas	22.0	36.4	41.0	48.6	53.2	60.3	61.4	70.0	52.0	48.6	35.0	26.6	46.3
East Sound	San Juan	32.8	43.4	43.8	48.6	53.2		61.2	60.4	54.0	50.6	45.2	41.7	49.8
Fort Simcoe	Yakima	30.0	41.2	46.2	54.8	56.7	65.6		71.3	57.6	56.7	40.7	33.6	50.4
Fort Spokane	Lincoln	23.8	31.2	40.2	49.5	56.0	62.4	67.5	67.0	53.6	49.5	34.4	28.8	47.0
Grand Mound	Thurston	38.4	44.6	44.4	49.6	53.8	60.5	63.6	62.4	54.4	50.4	41.4	39.2	50.2
Huntees	Stevens	22.5	29.2	31.1	43.4	48.6	54.6	59.6	58.0	45.2	44.0	29.7	22.3	40.8
Kennewick	Yakima	31.2	41.6	45.8	54.5	63.5	68.0	72.8	71.6	58.9	52.8			56.1
Index	Snohomish	36.6	43.6	46.0	54.1									
Lapush	Clallam	39.4	43.8	42.8	45.4	52.2	55.4			54.8	53.4	47.2	43.6	47.8
Lakeside	Okanogan	24.6	33.5	41.6	51.2	56.3	66.0	70.7	71.4	55.8	51.0	36.7	31.8	49.2
Lyle	Klickitat	30.8	39.7	42.3	50.6	55.1	63.1	67.2	67.6	56.3	52.1	39.7	36.1	50.0
Madrone	Kitsap	38.4	44.7	44.5	49.4	53.8	58.9	61.8	60.2	54.0	50.2	44.6	40.6	50.1
Mayfield	Lewis	36.2	41.2	42.6	51.2	54.8	60.2	64.3	61.4				38.2	50.0
Monte Christo	Snohomish			38.6	44.2	47.4	57.1	60.3	61.4	50.0	55.4	39.4	35.2	48.9
Moxee (N. Yakima)	Yakima	26.5	34.4	42.0	51.3	57.0	66.9	69.7	69.2	56.4	50.6	40.8	31.8	49.7
New Whatcom	Whatcom							60.9	59.9	52.3	48.6	44.6	41.7	
Olga	San Juan	39.1	44.6	46.0	49.2	53.8	58.7	61.6	59.6	56.8	50.4	44.5	41.2	50.5
Olympia	Thurston	37.4	44.4	44.0	49.1	53.6	60.8	63.0	62.5	56.2			40.8	50.1
Pomeroy	Garfield				54.4	55.9	63.0	70.0	72.0	58.1	59.0	43.3	36.2	
Pullman	Whitman	27.4	34.6	38.2	48.2	51.4	58.2					36.2	30.3	
Rosalia	Whitman	26.2	33.7	37.8	47.2	51.8	58.0	63.2	63.2	51.0	49.4	36.5	28.8	45.6
Silver Creek	Lewis	36.8	42.9	42.4	47.3	50.9	56.2	59.6	59.8	52.3	49.8	40.0	38.3	48.0
Snohomish	Snohomish	38.0	43.6	43.7	50.4	55.0	60.0	62.4	60.2	55.2	51.4	42.9	40.8	50.3
South Bend	Pacific			46.8	50.2	54.4	60.1	63.0	62.1	54.6	57.0	45.1		54.8
Stillaguamish	Snohomish	36.0	41.0	41.8	47.8	53.2	58.1	60.1	58.0	52.0	47.4	39.4	37.0	47.6
Sunnyside	Yakima	27.3	37.0	43.0	52.2	58.7	68.2	72.0	70.8	57.6	51.8	38.6	33.8	51.0
Tacoma	Pierce	38.2	44.2	43.8	49.2	52.9	59.3	62.0	60.7	54.2	50.9	42.5	39.8	49.8
Union City	Mason	38.4	47.0	42.8	46.5	54.2	62.7	65.9	64.2	55.2	51.2	44.7	40.4	51.1
Vashon College	King			39.2	46.2	49.0	51.0	55.0	55.6	49.8	45.8	39.0	37.5	46.8
Waterville	Douglas	21.0	29.6	36.9		51.8	61.3	65.5	65.6	51.3	48.9	33.2	26.6	44.7
Wenatchee Lake	Okanogan	24.4		36.8	43.9	50.5	58.5	60.3	60.6		49.0			48.0
West Ferndale	Whatcom	35.5	41.4	44.8	49.2	54.4	59.9	61.6	61.4	54.0	49.9	43.9	40.6	49.7
Stampede	King	30.0	35.2	37.2	45.0	47.7	56.4	60.8	62.0					
Seattle	King	39.3	45.0	44.5	50.0	55.2	60.9	63.6	62.0	55.8	51.6	44.4	41.8	51.2
Fort Canby	Pacific	40.2		45.7	48.3	53.0	56.2	59.9	58.0	56.2	54.4	46.0	43.5	51.0
Port Angeles	Clallam	37.1	42.2	42.0	45.5	50.4	54.3	56.8	56.3	50.8	48.5	44.0	40.4	47.4
Tatoosh Island	Clallam	40.4	44.3	43.8	45.6	50.2	53.4	56.0	54.6	52.2	50.6	45.9	43.2	48.4
Spokane	Spokane	27.8	35.6	39.2	49.8	54.7	62.1	67.4	67.6	58.8	50.5	37.0	31.2	48.1

IRRIGABLE LANDS.

The arid lands of Washington are located in the central portion of the state, principally in the counties of Kittitas, Yakima, Franklin, Douglas and Adams. Not all of the lands in these counties are arid, by any means, and there are portions of other counties that are classed as arid, but generally speaking the counties named have within their borders the greater portion of the arid lands of the state. It has been estimated that there are three million acres of arid lands in the entire state, of which about one million acres can be irrigated profitably under present conditions. As the demand for land increases by reason of increase in population, the values of land will enhance to a point at which it will be found profitable to irrigate an additional one million acres. The remaining one million acres of arid lands consist of the higher ranges of hills which cannot be irrigated economically, or lands where the soil is alkali, gravelly, sandy or otherwise unsuitable.

Washington is peculiarly fortunate in having an abundant and never failing source of water supply in the Cascades, Bitter Root and other ranges of mountains, which supply is entirely adequate to water all of the arid lands in the state so that the only question for consideration is that of cost.

The general advantages of farming by irrigation are well known and it is only necessary in this place to refer to them briefly. By the absolute control of the water supply which irrigation affords, the principal elements of uncertainty are eliminated, and farming is reduced to an exact science. Knowing his soil, climate and markets and controlling the water supply, the farmer can determine exactly what crops he can raise profitably and make his arrangements accordingly. Drouths and unseasonable rains have no terrors for him, and being able to regulate the moisture and give the plant life the exact amount it requires, he is assured of a maximum production every year.

SOIL.

The soil of the irrigable lands of this state is generally a volcanic ash or sediment deposited in the beds of extensive lakes during a lacustral period. The depth of soil varies in different localities from six to fifty feet. It is sufficiently porous to readily absorb water, is firm in texture, easily worked, does not bake and contains all the chemical elements essential to great fertility. There is a marked absence of alkali and clay which are serious drawbacks to successful farming by irrigation. The depth and character of the soil insures sufficient drainage, which is absolutely necessary for good results.

The following table shows analyses made by the State Agricultural College, Pullman, Washington:

	No. 1.	*No. 2.*	*No. 3.*	*Fremont, Neb.*
Insoluble residue	....	76.780	78.4340	....
Insoluble silica	64.860	71.670	60.2070	67.5283
Combined silica	10.185	5.110	18.2270	11.9390
Soluble silica	.385	.180	.2100	.1732
Potash	.700	1.070	.4328	.7867
Soda	.700	.350	.3739	.1432
Lime	1.448	2.000	1.2127	.4355
Magnesia	.991	1.340	.7880	.2585
Peroxoid of iron	4.768	6.880	5.1586	1.3009
Alumina	6.238	7.910	6.8906	7.9041
Phosphoric acid	.224	.130	.1007	.1008
Sulphuric acid	.129	.020	Trace.	.0378
Chlorin	.014	Trace.	.0058	.0181
Water at 120° C.	1.125	1.510	3.4527	3.0800
Volatile and organic matter	2.600	1.310	3.0195	6.4805
Total	94.367	99.480	100.0793	100.1866
Humus	....	4.100	.2550	....
Nitrogen	....	....	.0876	....

No. 1 was taken from the lower Yakima country, eight miles southwest of Kiona; No. 2 from the Ahtanum prairie, two miles southwest of North Yakima; No. 3 from the Wenas valley, six miles north of the city of North Yakima; No. 4 from Fremont, Neb.

A comparison of these soils shows that those of Yakima county, which are a fair sample of the irrigable lands of the state, are especially rich in lime, potash and phosphoric acid, the three constituents most essential to plant life. In this the soil is in no way exceptional to all basaltic soils wherever found. They are the characteristic soils of Italy and southern France. In Arizona and Mexico, where land has been under cultivation since the Spanish conquests, the basaltic soil still retains its marvelous fertility.

The lands under irrigation, moreover, are continually strengthened by the fertilizing properties of the water from the streams. Thus the native richness of the soil, and the mineral products brought to it by irrigation, postpone for a long period the necessity of using fertilizers.

CLIMATE.

The climate, as will be understood, varies according to the altitude. There is but an inconsiderable difference, however, in the climatic features of any of the arid lands of the state, and the absence of extremes of heat and cold is marked. The following table shows the mean temperature and rainfall at three different points in the Yakima valley, and may be considered as fairly typical of all of the arid land regions in the state:

MEAN TEMPERATURE.

Location.	*Jan.*	*Feb.*	*March*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Annual*	*Max.*	*Min.*
North Yakima	27	29	43	49	58	65	72	72	59	49	40	30	....	102	9
Ft. Simcoe	31	32	42	52	62	66	72	74	64	52	42	33	....	99	4
Kennewick	33	34	51	55	64	70	78	77	64	52	42	33	....	105	8

RAINFALL.

Location.	*Jan.*	*Feb.*	*March*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Annual*	*Max.*	*Min.*
North Yakima	0.85	1.42	1.04	0.96	1.48	0.45	0.25	0.01	0.14	0.58	0.94	1.52	9.64	2.56	0.00
Ft. Simcoe	2.14	2.17	1.24	0.74	0.98	0.82	0.19	0.04	0.24	0.81	1.20	2.23	12.30	3.42	0.00
Kennewick	1.58	0.42	0.30	0.39	0.49	0.38	0.02	0.01	0.22	0.54	0.63	1.28	6.26	1.86	0.00

The winters are short and moderate. Spring is early and the summer months afford so long a period of warm weather that all productions of the temperate zone thrive luxuriantly. The extreme heat of the arid land regions of the southern states and territories is unknown, and the atmosphere is so dry that the heat occasions slight discomfort. Sultry weather is so infrequent that debility never occurs. The long dry harvest season, free from rainy weather or even dews, is best appreciated by the farmer. Cyclones or tornadoes are unknown in the State of Washington.

PRODUCTS OF THE SOIL.

The range of crops that can be produced is limited only by the temperature. Experience teaches that small farms highly cultivated are the most profitable on irrigated lands, and a 20-acre farm properly handled insures prosperity, unless for dairying or stock raising when a larger area becomes necessary.

All of the deciduous fruits grow to perfection on these irrigable lands. There are no finer apples, pears, prunes, cherries, peaches or apricots raised anywhere in the world. All of the small fruits yield in the utmost abundance, and grapes are cultivated successfully and profitably.

There are a number of special crops that can be successfully grown only on irrigated lands, and to these we will call special attention.

First in importance is alfalfa (or lucerne). This is one of the oldest known plants in the world. It belongs to the clover family, and has great fattening and milk producing qualities, and for these reasons and also on account of its marvelous yield it is grown wherever the conditions will permit. It is an ideal food for sheep, keeping them in good condition and thus giving a fine coat of wool. It also makes excellent food for hogs. Generally three full cuttings is had each season, and in the warmest valleys four cuttings are obtained. The average crop may be put at from six to seven tons each year.

Corn is a staple crop in all of the lower lying valleys, and yields 40 to 50 bushels per acre, ripening perfectly during the long warm summer.

Broom corn also grows readily, requiring no more attention than any other corn crop. It yields about one-half ton per acre of brush and one-half ton of seed.

For several years sorghum has been grown in a small way, and has been demonstrated to be a profitable crop in the lower and warmer parts of the valleys. It produces from 125 to 140 gallons of refined syrup per acre.

LOCATION OF IRRIGABLE LANDS.

The greatest irrigation development at this time has been attained in the famous Yakima river valley. This stream rises in the Cascade mountains and flows in a general southeasterly direction until it empties into the Columbia river, a few miles above the mouth of the Snake river. With its numerous tributaries it contains a sufficient volume of water to irrigate all of the lands that can be economically covered, and several extensive lakes at the headwaters can be utilized as natural reservoirs at very slight expense. The gradient of the streams is very rapid, so that canals can be constructed covering large areas of land at reasonable cost.

The following table shows the canals that have been constructed or surveyed in Yakima county, their size, and the area of lands which they cover. The table, however, does not include the irrigation canals in the upper part of the valley in Kittitas county.

Canal.	*Completed, miles long..*	*Miles to be completed...*	*Acres reclaimed......*	*Acres to be reclaimed...*	*Acres under cultivation,*	*Acres for sale.........*	*Deliv. cu. ft. per second..*
Selah Valley Canal Co	22	....	6,000	....	1,000	5,000	40
Yakima Valley Canal Co	16	....	3,000	....	....	3,000	25
Tacoma & Yakima Land Co	12	24	....	8,700	....	....	....
Natchez & Cowychie	7	....	3,000	....	3,000	....	28
Union, Broadgauge & Shan'o	16	....	5,000	....	4,500	....	45
Moxee canals	33	18	5,050	3,000	2,150	2,590	140
Moxee artesian wells (7)	....	....	1,250	....	550	700	8
Yakima Investment Co	42	18	50,000	14,000	9,860	32,000	700
Yakima Irrigat'g & Imp. Co., 3 canals,	51	....	17,710	....	1,100	16,610	329
Prosser Falls Irri. Co	8	....	3,000	....	350	2,650	28
Prosser-Priest Rapids	18	38	....	60,000	....	....	....
Ahtanum valley*	100	....	16,000	....	16,000	....	100
Natchez valley*	12	....	8,000	....	8,000	....	80
Wenas valley*	8	....	4,800	....	4,800	....	36
Cowychie valley*	12	....	4,000	....	4,000	....	35
Sunnyside high line	....	114	....	285,000	....	....	....
Indian Reser. low line	26	42	14,600	87,000	14,600	....	170
Indian Reser. high line	....	32	....	24,000	....	....	....
Totals	383	286	141,410	481,700	69,910	62,550	1,764

*Small canals.

In Kittitas county it is estimated that there are about 30,000 acres under constructed ditches and in cultivation, in addition to which there are about 100,000 acres which can be irrigated by canals, some of which have been partly constructed, and their feasibility demonstrated. The irrigated lands in this county have a special value for dairying and stock raising purposes, being located near the Cascade mountains, which afford a large area of free grazing lands on the unsurveyed government lands.

The most extensive irrigation enterprise in the Yakima valley, and in the entire state at this time, is what is locally known as the high line canal. The survey of this canal was undertaken a short time ago jointly by the state and the Northern Pacific Railroad Company, within the limits of whose land grant it is located, and after a careful survey and examination its construction was found entirely practicable at low cost. This canal has its source of supply in the Natchez river, an important tributary of the Yakima, and its total length from the Natchez river to the Columbia river is 114 miles. It commands an area of about 400,000 acres, of which it is estimated that 285,000 acres are of first-class quality. The state, under the provisions of what is known as the Carey act, has selected 85,000 acres of this land, and as the Northern Pacific

Railroad Company owns nearly one-half of the total amount, these two large ownerships insure the early construction of this important enterprise.

Along the Snake river, from the Idaho line to its confluence with the Columbia, the banks are generally high and precipitous, but there are numerous benches and bars which are irrigated either by gravity canals or by lifting the water from the river by various mechanical devices. The low altitude and sheltered position of these lands enable them to produce all of the tender fruits, and their season is about two weeks earlier than most of the other valleys in the state. It is estimated that there are between two and three thousand acres in cultivation along this river.

A canal has been partly constructed to utilize the waters of the Walla Walla river for irrigating the lands lying on the south side of the Columbia river between Pasco and Wallula Junction. This canal will cover about 8,000 acres.

The banks of the Columbia river above Priest rapids are generally high, preventing the use of this stream for gravity canals on a large scale. There are, however, numerous places where the bluffs recede from the river, leaving low lying benches, some of which are already watered by gravity canals, and others will be reclaimed as the demand for irrigable lands increases. At the Priest rapids of the Columbia river there is a fall at low water of 78 feet in nine miles, and at this point a survey has been made for a gravity canal covering about 6,000 acres, which canal will also be utilized to furnish power for pumping water to the lands on the high plateau, of which it is estimated 30,000 acres can be covered economically in this manner.

The Wenatchee river is an important tributary of the Columbia. A number of irrigating canals have already been started in this valley and others are projected, and it is estimated that there are from ten to fifteen thousand acres of first-class irrigable lands in the valley, of which perhaps not to exceed one-tenth have yet been irrigated.

A canal has been partly constructed, utilizing the waters of the Palouse river, and will irrigate about 6,000 acres in Franklin county. This canal is nearly finished and it is expected that it will be completed this year (1896).

There are numerous places along the streams of the state which are not especially mentioned in this article where irrigation to a more or less extent can be successfully carried out, and there are a great many points where the current is sufficiently rapid to operate current motors or other devises to irrigate the lands contiguous to the stream. This is a cheap and entirely practicable method, and in the aggregate quite an extensive area can be irrigated economically in this manner.

In the Yakima valley, a few miles from the city of North Yakima, there is an artesian basin in which nine flowing wells have been sunk. The depth of these wells is from 400 to 950 feet, and a large area of arid land has been reclaimed at reasonable expense. There are doubtless other artesian basins in the arid lands of the state, but they have not been tested sufficiently to determine their location and extent.

TIMBER LANDS.

Preëminent amongst the rich and varied resources of the State of Washington is its wealth of standing timber, and in this respect it easily ranks first among the states of the union. The magnificent forests of fir, cedar, spruce and hemlock, extending from the Cascade mountains to the shores of the Pacific ocean, and from the Columbia river to the British line, are unequalled in their extent and quality, and have given to Washington the very appropriate name of "The Evergreen State."

The Cascade range of mountains divides the state into two distinct regions differing entirely in their physical characteristics, and in no feature is this difference so marked as in the forest growth. The abundant moisture and genial climate of Western Washington have for countless ages been forming these great forests, which has given to Washington timber a world-wide fame. On the eastern slope of the Cascade mountains there is a considerable body of timber, principally fir, yellow pine and tamarack, which, though inferior to the timber of Western Washington, is excellently adapted to a great many uses and finds a ready local market. The central portion of the state is devoid of timber, but on the northeastern border we find another fine body of timber, in which yellow pine predominates, interspersed with cedar and tamarack and an excellent quality of white pine, the only timber of this kind found in the state.

In Western Washington the Douglas fir is the predominating timber, constituting, it is estimated, eighty-five per cent. of the total. In some districts, notably in Southwestern Washington, considerable spruce, cedar and hemlock are found interspersed with the fir. In other districts cedar abounds with very little spruce or hemlock. The spruce is mostly found close to tide water and at a low altitude. Very frequently two sections, side by side, will differ entirely in the proportions of the different varieties.

The popular conception of Western Washington is one great forest from the summit of the Cascade mountains to the Pacific ocean. This, however, is far from being correct, and on account of the idea that it has conveyed of an unlimited quantity, much injury has been done by wasteful methods of logging and manufacture and careless and wanton destruction by fire. There are large areas of treeless prairies in Western Washington resulting from the gravelly character of the soil. There are also large areas where the timber has been burned off in former ages, and where the new growth of timber has not yet reached a merchantable age, and on the higher elevations of the Cascade and Olympic mountains there is very little timber. It should also be borne in mind that a great deal of the timber is remote from existing railroads or logging streams, and is therefore not accessible at present, which gives an additional prospective value to that which can be inexpensively logged. It is not necessary, however, to go to the other extreme and underestimate the extent and value of our timber, which has no equal in the known world and which will be a countless source of wealth for generations to come. But the duty of the present generation is to appreciate it at its true value and discourage its wanton destruction.

So much of the timber lands have not been thoroughly or sytematically explored that it is difficult to make an estimate of the amount of standing merchantable timber in Western Washington, but after careful consideration of all sources of information, the following is believed to be a conservative estimate:

Fir	127,500,000,000
Cedar	9,000,000,000
Spruce	4,500,000,000
Hemlock	9,000,000,000
Total	150,000,000,000

The extent and quality of the standing timber varies considerably in different localities, ranging from five to forty million feet, board measure, to a section of six hundred and forty acres, though some sections have been found exceeding even the latter figure. A careful cruise of one township in Pacific county showed that it contained 800,000,000 feet, and it is entirely safe to say that nowhere in the world, excepting perhaps in the State of Washington, could this township be duplicated in the extent and quality of its timber. The amount of timber per section, or township, is not extraordinary when we consider the size of the individual trees. To illustrate, a fir tree was cut only a short time ago in King county, Washington, which measured nine feet in diameter at the butt, four feet eight inches at the top, 186 feet long, and scaled 64,000 feet of lumber. This tree was absolutely perfect, not having a single knot or blemish of any kind, and the lumber cut from it graded as number one clear. The general range, however, of fir is from 4,000 to 15,000 feet, board measure, per tree. Cedar will average about 4,000 feet per tree, and spruce 7,000 feet.

In the variety of uses to which it is admirably adapted, the Douglas fir has no equal. By careful and exact tests it has been proven stronger than the best eastern oak, and as the accuracy of this statement may be called in question, we give the actual results of tests which were made by the engineering department of the Northern Pacific Railroad. Pieces of eastern white pine, eastern oak and Douglas fir, each two by four inches and four feet long, were laid edgwise on supports three feet nine inches apart in the clear, and by applying a concentrated weight in the center, each was loaded down until it broke. The breaking weight or pressure was as follows:

Eastern white pine	1,610 lbs.
Eastern oak	2,439 lbs.
Douglas fir	4,320 lbs.

The very best proof, however, of the great strength and durability of Douglas fir is the fact that it is now being generally used for railroad car sills and bridge stringers, two purposes for which the strongest timber obtainable are necessary. Its tall growth and large girth permits of greater possibilities in the way of long and large dimension timber than any other tree. For all structural work, especially when great span is required and for ship timbers and decking, it has no rival. The natural sticks make the best ship spars in the world. It makes splendid flooring, is an excellent finishing lumber, taking a smooth polish and having a beautiful grain. There is perhaps no other timber that can be used to advantage for such a variety of purposes.

Next in importance to the fir is the cedar. This timber is principally used for shingles, doors, sash, siding and finishing lumber, and for these purposes it is invaluable. There is no timber that equals it in durability. Cedar shingles that have been in use for fifty years are found perfectly sound.

The spruce of Western Washington very much resembles eastern white pine. In color it is almost milk-white, equally as soft as white pine, light in weight, free from odor of any kind, and takes paint readily. It is used for flooring, siding, piano sounding boards, all kinds of boxes, shelving, sash, doors and blinds and a variety of other uses. Its popular freedom from odor and pitch gives it a special value for packing cases of all kinds.

In certain districts in Western Washington hemlock is found. This hemlock, which is also known as Alaska pine, differs entirely in its botanical and physical characteristics from the hemlock of the Atlantic coast. It makes good flooring, keeping smooth and bright like pitch pine, takes a fine finish, is easily worked and presents a handsome grain. Like spruce it is odorless, so that it is excellently adapted for packing cases of all kinds. Careful analyses that have been made show that the bark contains from fifteen to twenty per cent. of tannin, as compared with eastern hemlock, which averages about ten per cent. It is only a question of a very few years when the hemlock of this state, by reason of its excellent qualities as lumber and the richness of its bark in tannin, will be ranked as one of our most valuable timbers.

The yellow pine, which is the predominating timber in Eastern Washington, is well adapted for all general purposes and finds a ready market. The cedar of Eastern Washington is practically identical with that of Western Washington and is used for the same purposes.

The census of 1890 gives the following figures as the average rate of stumpage per thousand feet in the different states named:

	Stumpage values per 1,000 feet.
Minnesota	$2 87
Michigan	3 44
Wisconsin	3 60
The southern states	1 61
Washington	65
Oregon	44

Owing to the general depression that has prevailed in the past few years, the average price of stumpage in this state has decreased since 1890 and can now be purchased at from forty to seventy-five cents per thousand feet, board measure, depending on the quality of the timber and its accessibility. These figures speak for themselves and prove conclusively that no better investment can be found than in Washington timber lands.

The value of Washington timber is greatly enhanced by the wide range of market which it commands. From the land-locked waters of Puget Sound and the various shipping ports on Gray's harbor, Willapa harbor and the Columbia river, a large fleet is continually employed carrying this timber to Australia, South Africa, China, Japan, Great Britain and Continental Europe, Central and South America, Mexico and California. At the larger mills from six to twenty vessels may be seen at any time receiving their cargoes. Thousands of carloads are shipped annually to all parts of the east, as far as New England.

The shipments for the year 1895 were as follows:

	Feet, B. M.
Cargo shipments, foreign	152,294,372
Cargo shipments, domestic	259,299,600
Rail shipments	90,984,000
Total lumber shipments	502,577,972

Shingle shipments, 13,776 carloads, or 2,181,240,000 shingles.

And yet the lumber industry of Washington is but in its infancy. New markets are constantly being opened up and developed. A little over a year ago the first cargo was shipped to South Africa, and that country is now a large and permanent consumer, with a rapidly increasing business. It is only a few years since the first rail shipment was made to the eastern states, and now an average of a train load is shipped every day in the year. And when we consider the situation carefully it is hardly possible to overestimate the future extent of the eastern market. The states of Michigan, Minnesota and Wisconsin are now the principal sources of lumber supply for the northwestern and middle states, but at the present rate of consumption it is only a question of a few years when the standing timber in these states will be exhausted, and it is generally conceded that Washington timber, as the most available source of supply, must take its place.

THE FISH INDUSTRY.

From the time of the earliest settlement of the colonists along the coast of the Atlantic the fishing industry of the United States has been recognized as an important one, and has grown apace with the population and diversified interests of this country. Our own State of Washington has been by no means blind to the superior facilities afforded her by nature with respect to this great wealth producing industry. Her extended coast line, with its numerous indentures of bay and inlet filled with the tides of the Pacific ocean; the lordly Columbia river draining her center and washing her southern shores, and that marvelous sea known as Puget Sound, interlaying her western division and ever replenished from the ocean by the tides coursing through the Straits of San Juan de Fuca; these waters and their tributaries, peopled as they are with countless millions of the choicest of food fishes, contribute to the fisherman a field for the pursuit of his industry that is greater in extent than that of most of even the coast states, and unexcelled by any of them in the extent and variety of fishes that inhabit the waters.

The extent and variety of the food fishes of Washington waters are very great, and predominant among them is the salmon. This species includes several distinct varieties, whose periodical "runs" bring them to the rivers and fishing banks of the sea in such succession as to prolong the season during which the fish may be taken, cured, canned, or otherwise prepared, from early spring to late fall. The Chinook (or Sockeye), Blueback, Steelhead and Silverside salmon are the varieties most extensively used in the canneries. At the beginnig of the development of this industry it was popularly supposed that only the Chinook (Sockeye) salmon was valuable for canning; but experiments made with other varieties of salmon, known to furnish excellent and nutritious food, soon demonstrated that all the species above named were not only good and wholesome for canning purposes, but that their meat was so nearly equal to that of the Chinook that only an expert could distinguish the difference, a fact now so well established as to be attested by no less an authority than the United States fish commissioner.

Sturgeon, or deep sea bass, is a splendid food fish caught in Washington waters. It is of monstrous size, but its flesh is fine grained and delicious. The sturgeon is less plentiful than the salmon, but it commands excellent prices in the market, and under the protection of wise laws for its perpetuation the sturgeon industry may be made permanent.

The smelt is a delicious small fish that inhabits both salt and fresh waters, being so plentiful at times that they may be dipped from the water with only an ordinary water pail.

The shad is not a native in these waters, but were "planted" on the Pacific coast some years ago by the United States fish commissioner. The natural propagation and growth has since been such that the catch last year exceeded the demands of the market. On the Atlantic coast the shad is a valuable food fish, but the superiority of the native food fishes of the Pacific coast is such as to cause the shad to suffer in comparison.

Halibut and cod, both too well known to require description here, people the waters of our Pacific coast in great quantities, and though there is as yet but one establishment in the state for the curing of these fish, at Anacortes, on Puget Sound, this branch of the fish industry of Washington must grow to large proportions by reason of its importance. Excellent facilities for rapid transit to the interior of the country opens to Washington fishermen a vast market to be supplied with fresh fish, and this branch of the industry is rapidly widening in scope.

Besides the varieties above named, we have the herring, catfish, tomcod, carp, salmon trout and brook trout, and numerous other species of lesser commercial importance. In fact, the waters of Washington may be truthfully said to be fairly alive with fish, grading down from those of the highest commercial value, embracing such fish as are the delight of the angler, to such as are of little or no value save as fertilizers for the soil.

Several varieties of shell fish abound in these waters, including crabs, lobsters, oysters, clams and mussels. All these contribute their share to the remunerativeness of the fish industry of Washington. The Pacific crab and lobster are similar to their Atlantic cousins. The oyster is smaller than the Atlantic oyster, but possesses a delicious flavor, distinctively its own, and is highly prized for its excellence. The clams are of several distinct varieties, each possessing a characteristic excellence. The mussel has until recently been considered unfit for food, but is of late taking its place among the commercial bivalves of the Pacific coast.

The Washington fish industry is divided into three separate districts, the greater of which, because longer established and consequently better developed, is the Columbia river district, in the extreme southwest of the state.

The industry in this district did not reach the proportions that it has at times in the past, yet the net returns to the district from this source for 1895, netted the snug sum of $3,418,963.74.

A large proportion of this represents money paid to the fishermen for their catches. Many of these are residents of Oregon, our sister state. Not so much as one-half the purchase price of salmon in this district inures to the benefit of Oregon, but for convenience one-half is taken as the basis of an estimate. We find that the total amount paid to fishermen by Washington canneries in the Columbia river district for the spring catch in 1895 was $1,776,547.60. One-half this amount, paid to Washington fishermen, enriches them in the sum of $888,273.80. The fish were sold to the canneries at prices varying from 2½ to 5 cents per pound. The value of the prepared product of the canneries of this district, spring pack, is $2,711,853.75. Deducting from this the estimated allowance to fishermen outside the state, leaves to Washington enterprise and industry in this computation $1,823,579.95.

The proceeds of the fall pack for this district are shown in the following figures, at the average value of $3.60 per case:

Species.	*No. cases.*	*Value.*
Silversides	92,086	$330,509 60
Chinook	31,500	113,400 00
Steelhead	3,500	12,600 00
Total		$456,509 60

In addition to the foregoing, the Columbia river sturgeon industry for the season was: Pounds packed, 1,673,413; paid fishermen, at 3 cents per pound, $50,202.39. Caviar prepared from sturgeon roe, 94,420 pounds; value, $14,655.

The value of the season's catch of smelt in the Columbia river was $9,682.

Number of pounds shad marketed, 165,800; value, $4,252. Salmon trout marketed, 29,500 pounds; value, $1,675.

The catfish and carp catch cannot be given in pounds, but the known returns from the sale of these fish for the season was $3,470. Tom cod, 57,200 pounds; value, $2,000.

The amount of fresh salmon distributed from the Columbia river by Washington canneries and fresh fish dealers was 5,197,600 pounds; value, $163,564. Salmon salted and smoked, 22,208 pounds, valued at $1,100.40. The above statements of value represent a total for the district of $3,418,968.14.

The district of Willapa and Gray's Harbors is less extensive. There were canned in Willapa Harbor 22,044 cases of salmon, representing a value of $69,515. Fresh salmon to the value of $500 was shipped from this harbor.

But one cannery is as yet operating on Gray's Harbor. Its pack for the season was far less than normal—10,600 cases; value, $23,800. There was shipped from this harbor 1,031,512 pounds of salmon, yielding a return of $22,784.75. Thus the revenue from salmon for this district was $116,599.75.

Greater attention is given to the oyster industry on Willapa Harbor than elsewhere in Washington, and the clam industry here claims its share of attention. Returns from these sources the past year foot up $67,500. Large numbers of clams are taken from Gray's Harbor, but we are unable to give here any statement of the volume of this branch of the industry.

The Puget Sound district is larger in scope than either of its neighbors, but until during the past year there has been no general development of the fish industry on Puget Sound, though of course fishing for the markets has been pursued for some years, and two or three canneries have been operated. The greater development, however, has been on British soil contiguous to the Sound. However, the pack of salmon for the past season is shown in the following figures, which are not complete:

	Cases.
Sockeye	64,603
Pink	11,515
Silverside	35,000
Not classified	16,378

The estimated total value of the season's pack in this district is $457,040. The value of fresh salmon sold, $173,937.50; smoked, $6,000; salted, $4,000. Of halibut handled, $34,000; codfish, $17,672.50; small fish, as soles, tomcod and smelt, $10,000; trout, $1,000. Oysters sold, 12,632 sacks at $2.50 per sack, $31,580; clams, 17,000 sacks at 75 cents, $12,750; mussels, 1,500 sacks at $1, $1,500; shrimps, 7,620 pounds, $762; herring, 1,000 boxes, $1,000.

The packing of sardines was begun in this district during the present season, at Port Townsend. One hundred and twenty cases of 100 cans each were packed, and the experiment has proven eminently successful. This adds $1,000 to the monetary value of the industry in this district, the aggregate of which is $752,242.

Five new canneries, the aggregate capacity of which will exceed those already in operation, are known to be under construction in this district, and are expected to be ready for operation early in the coming season. Three of these are building at Anacortes, and represent an outlay of $150,000. New locations for fishing off Orcas and other of the islands have been taken by hundreds, in preparation for the enlarged operations of the forthcoming season.

The initial step directed to the perpetuation of the salmon in the waters of Washington was taken when the legislature of 1895 appropriated $20,000 from the public funds of the state to establish and operate fish hatcheries. The first hatchery under this act has been established at Kalama, on a tributary of Columbia river, and the first successful hatch has been made. The capacity of this hatchery is 6,000,000 young salmon annually. But about one-half the appropriation has been exhausted, and it is expected that the second hatchery will be established on Skagit river, the largest tributary of Puget Sound, within the next year, and others will follow as the fish industry develops to make them necessary.

SUGAR BEET.

In a general discussion of the industries of our state, it is manifestly just that some mention should be made of the sugar beet industry, even though it is still in an embryonic condition. The inherent possibilities of its eventual successful development are sufficiently great to make it of more than usual importance to the future history of the state. It is not at all surprising just at this time that the development of any industry should not be simultaneous with the discovery of its possibility. The successful launching of all new enterprises has been greatly retarded, and in many cases wholly prevented by the financial conditions that have prevailed in the country during the past two or three years. Th stringency of the money market, coupled with the abnormal conditions affecting sugar fabrication, have very naturally exerted an unfavorable effect upon efforts made to establish new sugar factories. This state of affairs has been more noticeable in connection with the beet sugar industry than with that of cane sugar, because its development has been more recent, and because the climatic restrictions placed upon the latter by nature do not hold with equal force to the former. Hence, while a considerable effort has been put forth in several states west of the Rocky mountains to secure the capital necessary to erect and operate beet sugar factories, these efforts have been uniformly unsuccessful. No other result could have been expected in some cases, because no satisfactory demonstration had been made that the soil and climate were adapted to the production of beets of a superior quality. The United States contains but a limited area in which the culture of sugar beets for sugar making purposes can be carried on successfully. Dr. Wiley states that as far as temperature considerations are concerned, the conditions are favorable in a belt extending one hundred miles on each side of the mean isothermal of 70° for the months of June, July and August. A mean temperature of 70° for the months above mentioned has been found to be most favorable to beet culture in Germany. Dr. McMurtrie is of the opinion that in the United States, a minimum monthly rainfall of two inches for the summer months should be combined with the above temperature.

Many of the agricultural experiment stations in the middle and far west, and in the northwest, have reached the conclusion, after more or less extended experiments, that sugar beet culture can never become a very important factor in the several states in which the stations are located. The extended experiments in Washington lead to the conclusion that not only can beets be raised here possessing a high sugar percentage and unusual degree of purity, but, also, that the tonnage yield and cost of production are such that, with a factory market, they would be a much more remunerative crop than any to which our land is now devoted.

The conditions of soil and climate east and west of the Cascades are so different that one would hardly expect to obtain similar results from experiments conducted in these two separated sections. However, it is a striking feature of the data thus far obtained in connection with the sugar beet, that the *average quality* is nearly the same in Eastern and Western Washington.

It is generally conceded by the best authorities that a certain type of soil, viz., a light sandy loam, is best adapted to the habits of the sugar beet. But strange to say, this type is found in only very limited areas of the state, and then generally in regions where crops cannot be grown without irrigation. The general types of soil upon which beets have been grown, are the heavy clay loam of the Palouse country, the light sandy soil of the Kittitas valley, and the upland and bottom land of Western Washington, the latter containing in most instances a large amount of organic matter. Thus, the so-called "standard" beet soil is not standard for this state.

Authorities also agree that the successful culture of sugar beets depends upon a certain minimum and maximum rainfall. This is based upon the supposition that anything below the minimum amount, while it may produce beets rich in sugar, will reduce the tonnage yield below the limit of profitable production; while an amount of precipitation much greater than the maximum will produce a large tonnage yield, but will reduce the percentage of sugar in the juice below the limit of profitable manufacture. It is a singular and noteworthy fact that the amount of rainfall throughout the Palouse country is below the minimum, while that west of the mountains is in most cases above the maximum; and that in both of these sections beets of an excellent quality are produced which give a satisfactory tonnage yield.

The mean temperature for our state, for the months of June, July and August is only about 60 degrees, being 10 degrees lower than the recognized standard. Summing it all up, we have neither the standard soil, rainfall nor temperature, and yet are able to produce beets equal to any raised in sections where the standards are realized. Why is this? Is it because we have peculiarities of soil and climate which render them inapplicable in our case? Let us first consider the soil. A light sandy loam is recommended for beets, (1) because it usually has considerable depth; (2) because it is easily penetrated by roots; (3) because it does not retain excessive moisture; (4) because it permits a comparatively free circulation of air to the roots.

Are these same conditions fulfilled in the soil of Eastern Washington? For the purpose of this discussion we exclude the soils of the irrigated districts. All Eastern Washington soils, including those of irrigated districts, are undoubtedly of volcanic origin. The hills and hollows of the Palouse country owe their characteristic formation to the agency of winds, and hence, as would be naturally expected, their soil is in an exceedingly fine state of division, and in most localities also very deep. This fineness and depth make it an easy matter for the beet root to follow its natural inclinations in the matter of downward growth and development. There is rarely an excess of water in the soil during the growing season, because of the scant rainfall during that period.

All root crops in the state make a phenomenal growth, thus testifying that the supply of air to the roots, which is essential to crops growing under ground, is ample. Thus it would seem that the heavy clay loam of the Palouse country, and the light sandy loams of Nebraska, California and other sections are essentially the same in their relation to the production of root crops.

In Western Washington the soils are in the main the results of glacial action and sedimentation. Hence they are not so finely divided as the wind soils. By the gradual accumulation of decayed leaves and vegetation, they have been largely modified in their physical conditions, the large amount of organic matter which has not yet reached the humus stage making them light and porous. This accumulation has also naturally led to an increase in depth, which, together with the porosity, give to the growing plant freedom of development, and permits free circulation of air.

For the sake of comparison of chemical composition we give a table of analyses, including soils from Eastern and Western Washington, the beet districts of Nebraska, of Germany, France, and Russia:

	Whitman Co....	Spokane Co., average of 5 analyses.......	Norfolk, Neb.....	Whatcom Co., average of 6 analyses.......	Yakima Co., average of 5 analyses.......	Fremont, Neb....	France*..........	King Co., average of 2 analyses.......	Russia†..........
Insoluble silica....	62.8314	67.5044	57.1863	64.4965	73.5939	67.5283	81.8000	77.7844	72.6990
Combined silica...	13.6630	8.0786	16.0350	6.6728	8.0745	11.9390		5.0542	
Soluble silica.......	0.3010	0.1418	0.0707	0.0760	0.4003	0.1732	....	0.1127	....
Potash (K_2O)......	0.6351	0.5348	0.8104	0.2368	0.2301	0.7867	0.0640	0.0304	2.0470
Soda (Na_2O).........	0.3739	0.1719	0.1591	0.7433	0.5992	0.1432	0.0850	0.3561	0.9140
Lime (CaO).........	1.0614	0.6923	0.5673	0.8632	1.4360	0.4355	0.5100	0.4940	1.9300
Magnesia (MgO)..	0.7277	0.1977	0.7682	0.2128	0.1913	0.2585	....	0.3887	....
Per'id of I. (F_2O_3),	4.5539	3.8161	3.7427	6.8556	5.5041	1.3009	2.8800	3.1047	2.8340
Alumina (Al_2O_3)..	7.5263	7.7156	8.0356	8.4740	6.1005	7.9041	7.2400	4.6711	9.9740
Phos. Acid (P_2O_5),	0.1423	0.1362	0.1199	0.1607	0.1250	0.1008	0.0700	0.0639	0.0930
Sul. Acid (SO_3)...	trace.	0.1651	0.1287	0.0192	0.1981	0.0378	....	0.0278	....
Chlorin	0.0204	0.0096	0.0079	0.0102	0.0046	0.0181	....	0.0145	....
Water at 120°C.....	4.5234	2.3799	4.2481	4.3878	1.5176	3.0800	....	1.5733	....
Volatile and organic matter.....	3.6124	8.2813	7.7425	7.3983	2.4105	6.4805	5.6000	6.1016	6.2070
Total	99.9922	99.8253	99.6224	100.4072	100.3857	100.1866	....	99.7774	....

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*"Sugar Beet," pp. 103-4. †"La Bettrave a Sucre," p. 82.

Sugar beets draw quite heavily upon the soil for potash and phosphoric acid. An inspection of this table shows that Washington soils are richer in phosphoric acid than any of the others, but contain less potash than those in Nebraska and France. The percentage of potash in the Russian soil is abnormal.

From a chemical standpoint, Washington soils are abundantly able to produce good crops of beets.

In those sections of Eastern Washington outside of the irrigation districts, the average annual precipitation does not exceed 18 inches. During the year 1895, the total precipitation in Whitman county was slightly less than 12 inches, and yet did not bring about drouth conditions. The effect of the low rainfall was more marked upon garden produce and root crops than upon wheat and other cereals. The normal amount of rainfall—*i. e.*, 18 inches—furnishes sufficient moisture for the full development of crops in general in Eastern Washington, while in the eastern and middle states the same amount would bring about conditions of extreme drouth. This state of affairs can be rationally explained only by the differences in the texture and general physical properties of the soil, and the relation of the surface water to the underlying water table. In these so-called humid regions of the east, the average annual rainfall is approximately 40 inches. In these regions the soil is of such a character that the water received upon its surface percolates through it with little difficulty until it reaches the underground water. This character of the soil and the proximity of the water table to the surface, are conditions which produce a moist subsoil, and wherever this occurs the percolation above mentioned is quite rapid. In these humid regions it is estimated that at least one-half of the total precipitation is lost to plants by running off the surface in streams and by its downward movement through the subsoil. Hence the available moisture in the humid regions is only a little greater than the total precipitation in Eastern Washington. In this section of the state there seems to be no connection whatever between the surface water and the underlying water table. At a comparatively short distance below the surface, a dry substratum of soil is invariably encountered which is almost impervious to water because of being so finely divided, and because of its distance from the underground water. Because of this dry substratum practically none of the water received upon the surface is lost by percolation, but all is retained within reach of the plant.

The loss by evaporation is also less than with soils of a coarser texture. The 18 inches of rainfall for Eastern Washington is the total precipitation for the year, and includes both rainfall and snowfall. Just how much of this is available for vegetation is as yet an unsolved problem. It is certain, however, that the soil receives but very little moisture from snow that is removed by Chinook winds. It is probable that, in an average season, not more than 12 inches are directly used by crops, this estimate being based on the assumption that no moisture is lost by downward percolation, or by running off the surface. It should also be borne in mind that although evaporation in general is much more rapid here than in the humid regions, the loss of soil moisture by evaporation may be no greater, perhaps even less, due to the greater power of the finely divided soil to retain the moisture. This may explain in part at least why the quality and yield of sugar beets grown under this small precipitation equals or exceeds the results obtained under the "standard" conditions of rainfall. It is especially noticeable that in both Eastern and Western Washington the monthly rainfall for June, July and August is far below the minimum amount considered necessary by Dr. McMurtrie.

Attention has been directed for some time to Washington as a sugar producing state. It was publicly stated at one time that while 32 tons to the acre of superior beets were raised west of the Cascades, that "none of the land of Eastern Washington was suited to sugar beet culture because of an excess of alkali in the soil." The inaccuracy of this statement has been conclusively proven.

All of the work carried on in this state previous to 1894 in connection with the sugar beet was under the direction of the United States Department of Agriculture. From the bulletins of the Division of Chemistry, published by Dr. H. W. Wiley, we glean the following facts concerning the sample beets sent from our state for analysis: In 1890, one sample from Lewis county, which showed 16 per cent. sugar and 84.2 purity. In 1891, eleven samples from Lewis, Snohomish, Spokane, Stevens, Whatcom, and Whitman counties, which gave averages as follows: Weight 18 oz., sugar 15.2 per cent., purity 83.9. In 1892, fourteen samples from Douglas, Spokane, Stevens, and Whitman counties: Average weight 18 oz., sugar 15.2 per cent., purity 76.8. In 1893, 153 analyses from Asotin, Columbia, Douglas, Kittitas, Spokane, Stevens, Walla

Walla, Whitman, and Yakima counties, which averaged 12.7 per cent. sugar.

In the spring of 1894, the chemical department of the Experiment Station at Pullman, began a series of coöperative experiments for the purpose of obtaining definite and accurate information concerning the adaptability of Washington soil and climatic conditions to the production of beets suitable for use in the manufacture of sugar. Seed was sent to 1,015 farmers, living in every county of the state except Okanogan. In these experiments, seven varieties of seed were used, as follows: Klein Wanzlebener, Vilmorin Amelioreé, Le Maire, Vilmorin Improved, Knauer's Imperial, Mette, and Vilmorin Richest.

Samples for analysis were received in the fall from 384 different persons, and from all the counties except Clarke, Douglas, Franklin, Kitsap, Klickitat, Mason, Okanogan and Thurston. The results of the analyses of these samples revealed two very striking facts. *First*, That the shape of the beet seemed to have no relation to its sugar content and purity.* It has been found elsewhere that a beet showing many rootlets and having a scraggy appearance, is generally low in sugar and purity. *Second*, That while in general a high specific gravity of beet juice may indicate either a high sugar content or a low purity, the high specific gravities found here invariably indicated high sugar, thus showing a very uniform purity.

Seventeen hundred (1,700) samples were analyzed from 27 different counties, and 101 different towns. One of the varieties used, namely, the Vilmorin Improved, showed uniformly low results, and probably the seed was that of a stock beet, incorrectly labelled. The following interesting facts were obtained from the analyses:

Number of samples yielding less than 10 per cent. of sugar	52
" " " between 10 and 11 per cent. of sugar	38
" " " " 11 and 12 " "	74
" " " " 12 and 13 " "	134
" " " " 13 and 14 " "	239
" " " " 14 and 15 " "	328
" " " " 15 and 16 " "	336
" " " " 16 and 17 " "	246
" " " " 17 and 18 " "	149
" " " " 18 and 19 " "	68
" " " more than 19 per cent. of sugar	36
Highest sugar percentage	21.9
Lowest " "	4.7

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* The purity co-efficient is the ratio of the sugar to the total solids in the juice.

It is a most gratifying fact that 1,536, or over 90 per cent. of the 1,700 analyses, show a percentage of sugar higher than the 12 per cent. factory requirement. Were the Vilmorin Improved variety to be excluded in this connection, about 95 per cent. of the total number would show more than 12 per cent. of sugar.

The following averages, by towns, include all varieties:

WESTERN WASHINGTON.

Town.	*County.*	*No. analyses*	*Av. wt. of beet, ozs*	*Av. per ct. sugar*	*Average purity*	*Best single analysis.*		*Poorest single analysis.*	
						Sugar.	Purity.	Sugar.	Purity.
Agate	Lewis	6	15	13.7	84.5	14.5	85.3	13.0	84.5
Acme	Whatcom	4	31	9.6	80.3	10.6	81.8	8.2	73.2
Arlington	Snohomish	2	40	12.8	80.0	12.9	81.6	12.7	78.4
Blaine	Whatcom	4	42	14.4	89.2	15.9	92.4	11.8	81.4
Baker	Skagit	6	58	13.5	84.8	14.5	88.9	12.0	76.9
Beach	Whatcom	2	23	11.2	78.0	11.5	79.9	10.8	76.1
Coupeville	Island	6	44	14.2	87.7	14.8	88.6	13.4	87.0
Cedarville	Chehalis	6	42	12.1	83.2	14.0	85.4	9.8	80.7
Cowlitz	Lewis	8	17	12.6	81.5	15.5	85.6	8.5	74.5
Centralia	Lewis	3	5	15.3	83.2	15.8	86.3	15.0	82.0
Chehalis	Lewis	8	22	12.6	78.6	13.3	79.2	11.7	80.7
Dungeness	Clallam	21	80	10.2	81.0	15.3	86.4	6.3	70.0
Elma	Chehalis	12	35	12.6	78.9	14.2	84.0	11.5	79.3
Enterprise	Whatcom	20	16	14.9	85.8	16.7	90.7	12.3	74.1
Fidalgo	Skagit	7	3	16.4	88.6	18.3	88.4	13.8	85.2
Fern Hill	Pierce	7	12	14.9	84.5	16.9	87.5	13.0	74.3
Florence	Snohomish	4	54	12.2	84.6	14.4	90.6	9.2	74.2
Home Valley	Skamania	1	3	12.4	82.7	....	....	....	....
Hartford	Snohomish	16	18	14.7	87.5	17.0	92.4	11.0	80.9
Ilwaco	Pacific	22	18	14.4	84.4	17.0	93.4	10.4	74.3
Kent	King	18	20	13.3	79.0	16.5	84.6	10.0	70.9
Kelso	Cowlitz	2	36	14.6	83.5	15.5	86.5	13.7	80.6
Kalama	Cowlitz	6	26	13.1	83.4	13.8	84.7	11.1	78.2
La Conner	Skagit	14	24	14.5	86.0	17.4	92.5	12.6	80.8
Markham	Chehalis	4	27	15.6	91.4	16.1	96.4	14.9	87.6
Montesano	Chehalis	12	35	11.4	77.7	16.8	92.3	5.4	60.0
Menlo	Pacific	12	17	16.1	88.8	17.8	95.2	13.7	82.5
Marysville	Snohomish	10	17	13.0	79.6	15.1	92.6	11.1	72.6
Norman	Snohomish	4	45	12.5	83.3	15.1	87.8	10.5	80.7
Nooksack	Whatcom	4	34	15.2	86.3	16.4	90.1	13.0	78.3
Napavine	Lewis	11	26	13.5	81.4	15.8	86.3	11.5	76.7
Newcastle	King	6	21	11.5	72.0	13.4	78.4	10.0	67.1
Orting	Pierce	16	26	14.4	85.4	16.0	88.9	9.4	75.8
Quilcene	Jefferson	12	33	13.7	88.8	16.7	91.7	10.3	83.8
Roche Harbor	San Juan	2	38	9.9	64.9	10.9	69.0	9.0	60.9
Sedro	Skagit	8	21	13.3	80.1	14.0	79.1	12.3	78.0
Sultan	Snohomish	10	34	14.8	91.3	16.5	94.3	12.2	87.1
Skamokawa	Wahkiakum	4	31	14.1	81.4	15.2	86.9	12.4	74.7
Toledo	Lewis	41	22	14.0	84.7	17.1	90.0	7.7	74.0
Willapa	Pacific	2	13	15.7	87.7	17.6	90.2	13.9	85.3
Whatcom	Whatcom	12	15	11.8	77.9	13.6	79.5	9.0	69.2
Woolley	Skagit	4	28	13.3	80.0	14.2	85.5	12.5	78.7
Wickersham	Whatcom	7	12	13.0	81.0	13.7	83.0	12.0	87.0
Wana	Snohomish	6	41	11.4	77.5	14.7	87.5	7.7	64.1
Wabash	King	4	12	11.8	82.2	11.9	83.8	11.7	88.6

EASTERN WASHINGTON.

Town.	*County.*	*No. analyses*	*Av. wt. of beets, ozs.*	*Av. per ct. sugar*	*Average purity*	*Best single analysis.*		*Poorest single analysis.*	
						Sugar.	Purity.	Sugar.	Purity.
Asotin	Asotin	23	13	16.7	85.3	21.9	92.7	12.0	77.4
Aurora	Whitman	6	17	14.3	84.9	16.1	86.1	12.5	87.4
Anatone	Asotin	8	19	15.3	83.5	18.1	86.2	13.6	80.0
Belmont	Whitman	5	47	15.2	80.2	16.5	84.2	14.6	77.6
Covello	Columbia	4	22	15.7	89.9	16.5	91.1	15.0	88.2
Chewelah	Stevens	2	27	8.3	58.7	10.0	65.3	6.5	52.0
Cheney	Spokane	8	35	15.4	80.5	17.2	87.0	13.9	74.3
Crescent	Lincoln	41	15	15.5	83.1	19.4	82.6	10.7	84.9
Colfax	Whitman	129	22	15.2	84.1	19.8	94.3	11.6	83.1
Colville	Stevens	11	22	15.8	86.1	19.8	87.2	13.4	81.7
Colton	Whitman	24	33	14.2	80.5	17.2	86.9	4.7	50.5
Dayton	Columbia	54	19	16.0	84.1	20.1	93.3	7.0	62.5
Davenport	Lincoln	10	7	16.9	78.4	19.3	88.9	10.3	51.5
Diamond	Whitman	9	18	15.8	85.7	20.9	92.0	12.5	69.1
Dixie	Walla Walla	8	22	14.4	86.1	15.1	91.5	13.5	83.3
Delight	Adams	2	3	10.6	81.5	11.6	78.9	9.5	84.1
Ellensburg	Kittitas	98	10	15.9	85.2	20.0	94.7	9.5	76.6
Fletcher	Adams	6	10	14.0	86.0	15.3	86.4	10.5	84.7
Fairfield	Spokane	74	13	15.4	85.3	17.6	92.1	10.3	72.0
Farmington	Whitman	20	53	12.3	78.1	15.0	82.9	5.8	57.4
Fallons	Whitman	6	14	15.8	89.1	17.4	85.6	13.5	87.1
Garfield	Whitman	46	17	15.2	85.4	10.8	96.6	10.1	77.7
Guy	Whitman	25	24	15.3	85.5	17.8	90.3	10.9	72.1
Gould City	Garfield	2	48	14.3	80.3	14.6	81.1	14.0	79.5
Harvey	Stevens	8	24	15.7	82.4	17.7	86.3	12.0	71.4
Kettle Falls	Stevens	8	12	15.6	85.0	17.1	89.1	13.8	76.7
Larene	Lincoln	4	10	17.2	92.7	18.5	95.7	15.0	90.9
Latah	Spokane	20	26	14.5	82.4	17.0	82.5	11.0	77.5
Marshall	Spokane	2	45	13.2	81.6	14.2	85.0	12.2	78.2
Medical Lake	Spokane	6	15	14.4	74.3	18.5	78.0	11.2	66.1
Mayview	Garfield	13	34	14.2	78.5	16.6	84.7	11.9	69.6
Oakesdale	Whitman	21	38	13.5	80.5	16.6	86.5	9.3	77.5
Pomeroy	Garfield	32	37	14.8	80.1	17.6	82.2	11.0	66.6
Palouse	Whitman	23	15	15.6	83.8	18.6	88.6	12.9	81.1
Prescott	Walla Walla	6	30	15.7	84.3	17.5	89.7	13.7	81.1
Pine City	Whitman	6	23	16.8	85.5	18.8	87.4	14.8	81.3
Pullman	Whitman	106	20	15.8	84.4	19.4	89.8	12.3	77.4
Pataha	Garfield	9	36	13.0	79.0	16.6	86.5	10.8	71.1
Plaza	Spokane	8	27	16.1	85.5	19.3	91.4	13.2	75.9
Reardon	Lincoln	18	19	16.4	84.3	17.9	86.9	14.3	71.1
Rockford	Spokane	8	15	13.7	82.1	15.1	86.8	12.9	83.8
Rosalia	Whitman	15	16	16.7	89.4	19.6	90.3	14.3	82.2
Riparia	Columbia	4	14	15.9	85.9	16.3	90.5	13.9	81.3
St. John	Whitman	5	7	15.4	85.9	16.8	89.4	14.1	83.4
Steptoe	Whitman	12	43	14.5	82.1	16.8	87.4	12.0	70.6
Sprague	Lincoln	3	4	14.6	67.6	15.5	75.6	13.0	58.0
Starbuck	Columbia	6	18	13.8	75.9	17.0	84.6	11.4	70.3
Spokane	Spokane	32	19	15.5	82.6	19.8	94.1	12.6	76.8
Sunset	Whitman	4	42	14.2	82.9	16.1	88.4	11.9	78.8
Tekoa	Whitman	19	20	14.2	82.3	17.4	91.1	11.1	79.9
Uniontown	Whitman	120	28	15.2	82.7	18.2	89.2	11.2	75.7
Unknown		36	18	15.7	85.1	21.5	90.7	8.5	72.7
Waverly	Spokane	65	18	15.1	84.4	17.8	87.6	9.5	80.5
Welch	Spokane	12	12	15.1	79.8	18.3	88.4	12.4	71.6
Walla Walla	Walla Walla	14	66	12.2	74.4	17.5	81.8	7.0	49.6
Yakima City	Yakima	4	23	13.8	80.1	14.4	82.3	13.0	78.3

Averaging the analyses from each county, results are obtained that form an interesting study. All varieties are also included here:

COUNTY AVERAGES.

Name.	*No. of analyses.*	*Av. weight in ozs.*	*Av. sugar.*	*Av. purity.*
Adams	8	6	12.3	83.7
Asotin	26	16	16.0	84.4
Clallem	21	80	10.2	81.0
Cowlitz	8	31	13.8	83.4
Chehalis	34	35	12.9	82.8
Columbia	68	18	15.3	83.9
Garfield	56	39	14.0	79.4
Island	6	44	14.2	87.7
Jefferson	12	33	13.7	88.8
Kittitas	98	10	15.9	85.2
King	28	18	12.2	77.7
Lincoln	76	11	16.1	81.2
Lewis	77	18	13.6	82.3
Pierce	23	19	14.6	84.9
Pacific	36	16	15.4	86.9
Spokane	235	22	14.8	81.8
Stevens	29	21	13.8	78.5
Snohomish	52	36	13.5	83.4
Skamania	1	3	12.4	82.7
Skagit	33	19	14.3	83.6
San Juan	2	38	9.9	64.9
Whatcom	59	29	12.2	82.9
Wahkiakum	4	31	14.1	81.4
Walla Walla	28	39	14.1	81.6
Whitman	597	25	15.1	83.9
Yakima	4	23	13.8	80.1

It will be seen from this table that only two counties fall below the required 12 per cent. of sugar. In the case of Clallam county nearly all of the 21 samples were of the variety "Vilmorin Improved." Only four counties have an average purity below 80. These averages do not impress one with their real significance unless one keeps in mind the factory requirements, viz., 12 per cent. of sugar and a purity of 80.

Beets were received and analyzed from forty-five towns west and fifty-six east of the Cascade mountains. The following comparison will be of interest when we consider the wide variations of conditions between these two portions of the state:

Locality.	*No. of towns.*	*No. of analyses.*	*Average wt. of beet.*	*Av. per cent. of sugar.*	*Average purity.*
Eastern Washington	56	1,270	23 oz.	14.9	82.4
Western Washington	45	396	26 oz.	13.3	82.8

These averages include all analyses.

Eliminating from them the variety "Vilmorin Improved," the following results are obtained:

Locality.	*No. of towns.*	*No. of analyses.*	*Average wt. of beet.*	*Av. per cent. of sugar.*	*Average purity.*
Eastern Washington	56	1,188	21 oz.	15.5	83.8
Western Washington.........	45	360	24 oz.	14.9	83.8

While 1,700 analyses were made, these averages were computed before some of these samples arrived; hence only 1,666 analyses are included in them.

For the entire state, including all varieties, we have the following data: 1,666 analyses; average weight, 25 ounces; average sugar, 14.2 per cent.; average purity, 82.6.

Included in this are 122 analyses of the variety "Vilmorin Improved," which averaged as follows: Weight, 43 ounces; sugar, 11.1 per cent.; purity, 77.0.

Eliminating this variety from the state average (which it is manifestly just to do for reasons already given) we have the following: 1,544 analyses; average weight, 22 ounces; average sugar, 15.2 per cent.; average purity, 83.8.

WHAT DO THESE RESULTS MEAN TO THE STATE OF WASHINGTON?

In order to realize to the fullest extent what these results mean to us we must know about the results obtained in other states. We give below some data taken from the bulletins of the different experiment stations:

State.	*No. of bulletin......*	*Season.........*	*No. of analyses averaged....*	*Average sugar percentage...*	*Average purity........*
North Dakota..	5	1891	129	11.4	....
Oregon	23	1892	65	15.7	78.1
South Dakota..	34	1892	160	13.9	75.8
Wisconsin	26	1890	93	12.5	77.1
Wyoming..	17	1893	33	17.1	80.9
Indiana..	49	1893	49	12.5	78.9
Iowa..	23	1893	55	11.9	76.1
Kansas..	36	1892	95	11.0	74.0
Michigan..	82	1891	239	13.8	86.4
Minnesota..	27	1892	182	14.4	82.3
Colorado..	14	1890	73	11.6	83.1
Washington	....	1894	1,544	15.2	83.8

It will be noticed that only two states, Oregon and Wyoming, have obtained averages approximating to those obtained here last year; and in both cases the number of samples averaged was less than one hundred.

Beets of the highest degree of perfection result only from the most thorough and intelligent cultivation. The samples analyzed last year were grown under the most unfavorable culture conditions, and selected by men who were, in the main, wholly unacquainted with the characteristics of beets containing a high percentage of saccharine matter. It is, therefore, fair to presume that the average above given is, at least, no higher than would be obtained from beets grown for factory purposes.

These results, then, simply mean that the State of Washington can produce beets of a character greatly to be desired by factories.

WILL THE BEET SUGAR INDUSTRY BE ESTABLISHED IN WASHINGTON?

That depends. The work just completed demonstrates the superior character of Washington beets. In regard to tonnage yield, we can give no accurate data. It is probable that an average of twenty tons per acre would be a conservative estimate; but this is only an estimate and not based upon accurate measurement of ground, and weight of beets produced. However, those who know the capabilities of our soil have no fear of disappointment from low yield. Another very important point upon which the introduction of this industry will depend is the cost of production. Our farmers must understand from the outset that it will cost time, labor and money to raise a crop of beets that will yield proper returns. And it is self-evident that they will not undertake to raise beets for a factory until they are convinced that the large outlay of energy and money necessary to raise them will yield proportionately larger returns than a smaller outlay applied to raising some other crop. In other words, the future of beet culture in this state, as elsewhere, depends entirely on the return it yields—the cost of production on the one hand, and the yield per acre and price per ton paid by the factory on the other. As nearly as can be ascertained from the statistics concerning beet culture in Nebraska, the cost of production averages from $30 to $40 per acre, where no fertilizers are used. There is no good reason why it should cost a greater sum to produce an acre of beets in Washington, and some very good reasons why it should cost less. The weed problem is much more easily met in Washington than in older agricultural states. One good hoeing, in this state, will accomplish as much in weed destruction as two hoeings in Nebraska. This is by no means an insignificant item. Ten dollars is the average of four estimates obtained concerning the actual cost of the labor for hoeing an acre of beets in Nebraska. Those who have observed carefully the agricultural conditions in the two states will sustain the assertion that one-half the labor required to keep weeds down there, will easily accomplish the same object here. Hence, in this point alone, assuming our yield to be twenty tons per acre, the cost of production will be twenty-five cents per ton less here than in Nebraska.

It must not be supposed, however, that the beets are hoed for the sole purpose of killing weeds. A certain amount of labor expended in stirring the soil, to admit free circulation of air to the roots, would be very necessary, even though the weeds were wholly absent. And further, up to certain limits, the yield of saccharine matter in the roots will be largely dependent on the amount of labor directed to this end. But every farmer knows that it is cheaper and easier to simply stir the soil than it is to kill weeds at the same time. The comparatively few weeds we have is then one point in favor of the farmer in beet production.

We do not advocate beet farming alone, but as a factor of diversity. It has been urged that beets exhaust the soil too quickly, and it is very true that a forced culture of beets would, in a comparatively short time, cause a decrease in soil productivity; but this is also true of other crops when they are made the object of forced culture. An intelligent culture of beets, as a crop in rotation, works no more injury to the soil than does wheat, oats, or hops, and in some respects improves it. Dr. Wiley says:

> "The establishment of sugar beet culture becomes a true lesson in agriculture. Every field properly cultivated in beets becomes an agricultural experiment station. The influence of beet culture is felt upon every other crop. The yield per acre of cereals, root crops, and grasses, is always found higher in a community after the introduction of beet culture."

How much will the farmer receive for his beets? This is, of course, impossible to state. We can simply be guided in our estimations by what the factories now in operation pay per ton. In Nebraska, during 1895, the price paid was $4 per ton. In Utah, $4 per ton was paid for last year's crop. At Watsonville, California, the price was $4 per ton, while at Chino, California, $3.50 was paid for 12 per cent. beets, and twenty-five cents more per ton for each and every additional per cent. of sugar in the beets.

From these figures we see that the lowest price paid for the crop of 1895 was $4 per ton where payment was not based upon sugar percentage. Suppose our Washington farmers should raise fifteen tons per acre, which we believe to be a low estimate, the amount received per acre for the beets would be $60. Count the cost of production $40 per acre, which is undoubtedly high, and the *net profit* is then $20 per acre. This would be much more remunerative than fifty bushels per acre of fifty cent wheat.

Our state bounty law provides that one-half cent per pound shall be paid to the farmer for all sugar manufactured from his beets. The beet crop of 1893 in the United States yielded an average of 230.7 pounds of sugar per ton of beets. Fifteen tons per acre, on this basis, would yield 3,460 pounds of sugar, upon which the bounty would be $17.30. This amount, added to net profit from sale of beets, gives $37.30 per acre *clear* to the beet grower. It is true, as we have been told, that these calculations are all on paper, but there is no reason why they should not be verified in practical experience.

These, then, are the inducements to the farmer to engage in the sugar beet industry. What inducements can be offered to the manufacturer? Anyone contemplating the erection of a factory will demand (1) beets of a satisfactory quality, and plenty of them; (2) an abundance of good water; (3) plenty of good limestone; (4) cheap fuel. Can we satisfy these demands?

(1) There can be no longer any doubt of our ability to produce satisfactory beets. During the progress of these experiments the statement was circulated in certain sections of the state that while our beets were rich in sugar, their purity was so low that the sugar would not crystallize. This statement is fully disproved by the work now completed. In factory operations, crystallization is prevented by the presence in the beet juice of mineral salts taken from the soil. The extent to which these salts are present is positively indicated by the number expressing purity. That is to say, a beet juice having a purity of 80, has, among its total solids, 20 per cent. of matter not sugar. This 20 per cent. is made up largely of sugars other than sucrose and mineral salts. Now, when little or no difficulty is experienced in manufacturing sugar from beets of 80

purity, it is absurd to think those having a still higher purity would fail to give as good results.

From the present agricultural conditions prevailing in our state, there is scarcely room for any doubt about the ability of the manufacturer to contract as many acres of beets as he desires. We know that there are a number of places in the state where the farmers are anxious to contract for from 5,000 to 10,000 acres.

(2) The question of a local water supply will, in the very nature of things, preclude the possibility of a sugar factory in some sections of the state. A factory of 350 tons daily capacity will require about two million gallons of water every 24 hours. This amount of water can be easily supplied in many places that can also produce suitable beets.

(3) We have an abundance of unusually pure limestone that is easily accessible. One sample of crystalline limestone from Stevens county, analyzed in our laboratory, was 98 per cent. pure. A factory will use from fifteen to twenty tons daily.

(4) The possibility of cheap fuel will be conditioned somewhat upon the location of the factory. If all other conditions are fully met, the question of fuel supply will be easily adjusted.

During the year 1895 experiments were carried on in acre tracts for the purpose of obtaining data concerning yield per acre and cost of production. An acre was planted at each of the following places: Puyallup, Pierce county; Chehalis, Lewis county; Ellensburg, Kittitas county; Hartford, Snohomish county; Nooksack, Whatcom county; Dayton, Columbia county; Vancouver, Clarke county; Orting, Pierce county; Waverly, Spokane county; Crescent, Lincoln county.

Samples analyzed last fall from each of these places gave the following results:

Locality.	*No. of analyses*	*Av. weight, in ozs.*	*Av. sugar in beet*	*Av. sugar in juice*	*Av. purity*
Puyallup	50	17	17.1	18.0	89.1
Chehalis	50	23	16.4	17.2	85.1
Ellensburg	52	14	17.1	18.0	88.2
Hartford	50	12	17.0	17.9	88.5
Nooksack	50	19	15.6	16.4	89.1
Dayton	50	11	13.6	14.3	81.3
Vancouver	51	34	14.2	15.0	87.2
Orting	56	18	16.8	17.7	92.7
Waverly	55	17	18.5	19.5	89.4
Crescent	57	8	15.8	16.6	87.5

It need scarcely be said that these results are remarkable, both as regards percentage of sugar and purity. Complete data have not yet been obtained concerning the cost and yield, but there is every reason for believing that with the usual climatic conditions, 20 tons would be a conservative estimate of the yield per acre, and that the cost of production will not exceed $35 per acre as a maximum, while in most cases it will be much below that figure.

The beet sugar industry in the United States has reached its highest development in Central and Southern California. During the last summer a careful study was made both in field and factory, of all the conditions affecting the industry in that state, in its two branches, viz.: The production of the beets, and the fabrication of sugar from them. After a systematic and careful consideration of the existing conditions, and of the problems that will confront the beet sugar industry in California in the future, and a comparison with the conditions that exist now in this state, and those that may arise from the development of the industry, there is found abundant evidence that the natural advantages in Washington favorable to the permanent success of beet sugar manufacture are much greater than found elsewhere in the United States.

DAIRYING.

Like most phases of agricultural industry in America, dairying is mostly confined to a belt of country extending across the continent. This belt includes the southern portion of the Dominion of Canada and the northern two tiers of states in this country. The industry has its highest development right along the northern boundary of the United States, especially in the states of New York, Wisconsin, Minnesota, and the province of Ontario, Canada. North of this belt the winters are so prolonged and severe that it is difficult to produce sufficient forage for dairy cattle, and too expensive to care for them properly during the rigors of winter; while to the south, although proper food can be produced in great quantities, there seems little hope of a large development in the dairy industry, for the reason that the proper handling of milk in warm climates is very expensive and troublesome. All the changes that normally occur in milk are due to the presence in it of micro-organisms, such as bacteria, moulds, yeasts, etc. In warm climates these organisms develop in milk at such a rate as to render it extremely difficult to carry on dairy operations on a commercial scale.

Dairying, therefore, requires for its highest development a climate that is rather cool than warm, and at the same time one that is equable.

On the Pacific coast, the influence of the Japan current renders the climate extremely equable, the whole region from central California to the southern boundary of Alaska being practically free from the blizzards that sweep the prairies of the north central parts of the continent, and also from the scorching heat of inland summers. Under the influence of this ocean current, the dairy belt widens out as it approaches the Pacific coast, including a large part of California, all of Oregon and Washington, and the southern part of the adjacent Canadian province. As to the adaptability of this section to dairying, there can be no doubt. On this point, the following letter to the Spokane Spokesman-Review, written by a New York dairyman, after spending some weeks in this state, is pertinent:

"I came to Spokane about two months ago to look after some business interests, with the intention of soon returning east. In the meantime I have taken a great deal of pleasure in learning what I could of this country. It seems to me that there are great possibilities for it in the wonderful climate, the apparently happy condition of the people, the great fertility of the soil, as shown by the variety, size and rich flavor of the fruits, the grains, vegetables, etc., that nature has been extremely partial to this state, favoring her with conditions that no other state possesses.

"I have fully made up my mind that the State of Washington is good enough for me to live in, and shall accordingly send for my family.

"I have written several letters to my home in New York state, some of which have been published in the local papers there, and as a consequence I have been besieged with letters from different sections of my state, some from Michigan and from the State of Kansas, inquiring all about the class of people who live here, the schools, climate, the kind of soil, and especially about dairying. I have answered them as far as I have been able and to the best of my ability.

"All my life, until very recently, has been passed on a dairy farm, engaged in the manufacture of butter and cheese, selection and care of cows suitable for the dairy and the sale of dairy products. This is the leading farm industry in my section of New York state, and in fact, the state generally. The conditions there, however, are far from being favorable, owing generally to an impoverished condition of the soil, cost of feed (being more than twice what it is here), low price of dairy products and the long, severe winter. These conditions are reversed here—an exceedingly rich soil, much better prices for butter and cheese, cheaper food, and a very short, mild winter—all of which are a necessity to profitable dairying.

"Having learned this from practical experience, my attention has been directed to this branch of farm industry perhaps more than to any other, and I know in my own mind that the full and careful development of the dairy industry will eventually bring more wealth to the State of Washington than all her mines of gold and silver.

"I also know that in my section of New York state are hundreds of good, practical dairymen who, under the conditions that exist here, would make a complete success. I also know that they can be very easily induced to come here. They should be guaranteed fair treatment in locating and as low rates for transportation as possible, for a reduction in railroad fare is very often a great inducement to people coming so far. Then people will come here with from $1,000 to $10,000. I have a personal letter from the state dairy inspector of New York saying that there is a great number of people, dairymen, who, if conditions are as I have written him, would be pleased to come here. They will come and help to develop the wealth that lies in your soil. They will make good citizens; they are thoroughly American, believing only in American institutions."

RELATION OF THE CLOVERS TO DAIRYING.

In addition to the necessary climatic conditions above described, the cultivation of suitable forage crops is necessary to the development of the dairy industry in any country; and it may be broadly stated that no country is adapted to dairying in which some of the leading leguminous crops do not thrive. In this connection a brief consideration of the agricultural products of the State of Washington will be of value.

The state comprises three sections, differing in soil, rainfall, and in the crops adapted to them. That portion of the state located west of the Cascade mountains is characterized by a heavy rainfall in winter, thus adapting the country to the growth of all kinds of hay and pasture grasses. This portion of the state produces a luxuriant growth of timothy, red clover, alsike clover, red top, vetch, and, on the uplands, orchard grass, tall oat grass, and white clover. The uplands of this district were heavily timbered, but wherever the trees have been felled to admit the penetration of the sun's rays, forage grasses have been kissed into life, and excellent pasturage results. The rich lands of the valleys and deltas which characterize this district produce a remarkable tonnage of red and alsike clovers, thus restricting to the minimum the acreage necessary to the sustenance of the dairymen's herds. Western Washington is splendidly watered with innumerable springs, creeks, brooks, rivers and lakes of clear, cold water, which is a great convenience in the conduct of successful dairy enterprises.

A few restricted areas are found in the valleys of the Cascade mountains, on both the east and west sides, where conditions are similar to those just described for Western Washington, and where the crops are essentially the same.

That portion of the state lying east of the Cascades may very properly be divided into Middle and Eastern Washington, though the boundary line between these sections is one rather of conditions than of locality. Middle Washington comprises those parts of the state in which the rainfall is not sufficient for the purposes of agriculture, and where irrigation is practiced. This includes the Ellensburg, Yakima and Wenatchee districts. These are characterized mainly by a deep sandy loam soil, and for this latitude, a warm climate. Water being plentiful in the streams coming down from the mountains, nearly all the valuable land in these districts is under irrigation or capable of being brought under it. In these districts, and also in the Walla Walla country, where the soil is similar, alfalfa grows in great perfection, yielding three to four cuttings a year of the richest hay known. It is perhaps a fair estimate to place the yield of alfalfa fields in these districts at six to eight tons per acre, and the lifetime of such a field at twelve to fifteen years. In addition, rye and corn and all the root crops grow here in perfection, except in the case of corn, which yields abundance of fodder.

We have here a combination of crops, and a yield that makes it possible to feed a dairy cow an ideal ration for less than 10 cents a day. When it is remembered that in the great dairy states east of us the daily rations fed good cows cost from 18 to 25 cents a day, it is clear that the farmers of the State of Washington are making no mistake in breeding up the excellent herds of dairy animals already to be found here. It is also clear that when the dairy industry has here reached a stage of development that will require us to seek a market in the large cities of the east, the Washington farmer will always have the advantage of his eastern neighbors in cost of production.

The remaining portions of Eastern Washington consist for the most part of high, rolling prairies, where the rainfall is sufficient for growing all kinds of crops, especially the cereal grains. The soil is mostly a clay loam, very retentive of moisture, which absorbs and holds practically all the rainfall. Until very recent years the great success with wheat and barley in these sections prevented farmers from attempting to grow other crops. But since the establishment of the experiment station it has been learned that many other crops, including several of the leading agricultural grasses, do quite as well as the cereals. In investigating the adaptability of Eastern Washington to dairying and stock raising, the first question to be ascertained was, what leguminous plants will thrive under the local conditions of soil and climate? Alfalfa was tried, and proved a failure. It will not thrive over a clay subsoil. Red clover gave most encouraging results, and although experiments are not yet carried far enough to make results definitely certain, present indications are that clover will be a success. But of all leguminous plants experimented with, it may be said that the Canadian field pea gives the most promise. This plant is usually sown with oats and harvested for hay, yielding hay little if at all inferior to red clover hay. Farmers in this section are now turning their attention to this plant, and the success with it indicates that this is the future great leguminous crop of this section.

DEVELOPMENT OF THE DAIRY INDUSTRY.

With the climate and agricultural products above set forth, it is not surprising that the dairy industry has had a remarkable development during the few years since the first creameries and cheese factories were established in the state. The beginning of the industry was entirely spontaneous, there being at the time no laws for the encouragement and protection of the infant industry, and no papers devoted to the dissemination of dairy information amongst factory men and farmers. These conditions made it possible for irresponsible dealers to palm off on communities desiring to erect factories, stocks of inferior apparatus at exorbitant prices; while dealers in dairy products handled great quantities of "hog butter" and adulterated cheese.

Notwithstanding these early discouragements, the dairy industry had grown into such importance in 1894, that a state dairy association became possible; and mainly through the influence of this organization the legislature, which met the succeeding winter, enacted excellent laws for the protection of the industry against fraudulent products, and provided for the appointment of a state dairy commissioner, whose duty it is to see that violations of the law are punished.

Not the least important of the duties imposed on the commissioner was the collection of statistics, and his first annual report, just issued, gives us the first official estimate of the importance of the industry in the state.

This report, though not complete, shows 85 creameries and cheese factories in operation in the state, and many persons and firms engaged in the production of milk for the city trade. These establishments are distributed very generally throughout the three sections of the state above mentioned, 37 having been found in Western Washington, 20 in Central and 28 in Eastern Washington. It is shown that 1,322,025 pounds of butter and 405,056 pounds of cheese were manufactured in the state during the year; and there was probably manufactured as large a quantity of butter, and considerable cheese, by private dairymen, not included in the report.

COWS.

The report of the state dairy commissioner indicates that the average yield of the cows of the state is about 150 pounds of butter per year. This is about 20 pounds in excess of the average for the country in general. It is estimated that in the State of New York, where dairy farming has had a high development for many years, the average yield of butter is 130 pounds per cow per year.

The reason for the high average in the State of Washington is not far to seek. First, the climate of the state is not severe, and the ease with which excellent crops of forage plants are produced results in better feeding in this state than is practiced in many other states; while, secondly, the great prosperity that existed here during the early history of the state made it possible for stockmen to indulge their fancy for fine cattle. As a result there are to-day in this state some herds of Jersey and Holstein cattle that would be a credit to any state in the union. The excellent dairy qualities of these herds contributes to raise the average standard of cows in the state to a very creditable showing; and every season the leading herds of dairy cattle in the east are drawn upon to further increase the number of these desirable cattle. We have in mind at present writing, five importations from Wisconsin, one from New York, and two from Indiana, within the past year, of cattle of the highest excellence.

The conditions existing in the State of Washington are unlike those of almost any other state. The state is for the most part newly settled by men coming from eastern states, having been attracted here through reading of its advantages. They are as a rule reading men, and are quick to take advantage of opportunities that present themselves. Being thus alive to their own interests, a larger number of improved live stock is found in many communities in this state than is often found in much older sections in other states.

As yet, the question of a market for dairy products has received little attention, for the reason that the supply has never exceeded local demands. The large railroad, lumbering and mining interests of the state and adjacent territory have been more than sufficient to absorb the output, and during the year just closed large importations from eastern firms were necessary. Yet the time will undoubtedly come, considering the present rapid development of the industry in the state, when we shall be obliged to seek a market in competition with other dairy sections, and then it will be quality and not quantity that will be important.

Investigation has shown that, whereas, in 1891 Washington consumed $2,500,000 worth of butter and cheese in excess of her production, in 1895 the increase of production was such that it was necessary to import only $300,000 worth to supply the Washington market.

With a view to improving the quality of such products, and thereby making the industry still more profitable, the last session of the legislature very generously provided for the establishment of a dairy school in connection with the State Agricultural College at Pullman. This school was duly organized and is now in successful operation. The dairy school building is fully equipped with all the best modern apparatus necessary for both butter and cheese making, and the students in attendance are very enthusiastic over the opportunities this school affords them. It offers to the butter and cheese makers of the state an opportunity of informing themselves as to the most approved methods of modern dairy practice, and gives them practical work for several weeks under the direction of the most skillful workmen.

In closing, a few words as to the value of the dairy industry to the state, may not be out of place. This industry offers a means of livelihood to thousands of industrious citizens, and as a dairyman can hardly succeed without reading, our dairymen are always amongst our best citizens. But the dairy industry offers another advantage of the greatest importance to every interest of the state. It is a well known fact that land cannot be continually cropped for long periods without restoring to it the fertility removed by growing crops. Every ton of hay sold from a farm carries with it a part of the most valuable constituents of the soil of that farm. When this hay is fed on the farm, and the manure returned to the fields, these fertilizing materials are saved, and every ton thus saved serves to delay the time that will surely come—that has come in every older state—when farmers are compelled to restore the fertility of their fields by the purchase of chemical fertilizers. The dairy industry tends more than any other one thing to the conservation of the fertility of the soil by giving abundance of manure to spread over the fields. Its returns are more certain than those of any other industry, even if they are not large. They also come in at regular and frequent intervals, thus contributing to frugality, and enabling the prudent farmer to deal always on a cash basis. It is to be hoped that the dairy industry in Washington will continue its present rapid advancement.

FLAX CULTURE ON PUGET SOUND.

For some years past there have been conducted in Western Washington a series of experiments in the cultivation of flax for its fine fiber. These experiments have been under the personal and intelligent direction of Dr. A. W. Thornton, of West Ferndale, Whatcom county, Washington, whose response to an invitation from the State Department to give to the public through this medium the results of his experiments, is hereto appended:

"*Hon. J. H. Price, Secretary of State:*

"DEAR SIR—In conformity with your request, I take pleasure in giving you this brief synopsis of experiments, so far as they have progressed up to this date.

"In the past five years I have carried on a series of practical investigations with a view to demonstrating the special adaptability of Puget Sound (by which is meant all of Western Washington) to the production of the finer grades of flax fiber. During the first three or four years my investigations were limited to Whatcom county. These earlier experiments yielded results so encouraging that the United States Department of Agriculture made an appropriation for continuing the work upon a larger and more widely extended scale, under the direction of Mr. Charles Richards Dodge, special agent in charge of Division of Fiber Investigation. For the purposes of this investigation I was appointed special agent for Puget Sound District.

"In 1893, working in my private capacity, I had twelve experimenters growing small areas of flax for me upon different characters of land and from different quantities of seed sown per acre. These experimental crops were successful in every case, yielding flax of a very superior quality, ranging from 2¾ to 4 tons per acre of dry, clean straw, and from 9 to 19 bushels of seed per acre. The seed of that season's growth yielded over 37 per cent. of oil. As the seeding of those crops varied from 1⅓ to 2½ bushels per acre, the results may be considered phenomenal, as viewed from the eastern standpoint. The wealth of the seed in oil is the more remarkable from the fact that the flax was pulled before fully ripened; yet it yielded more than 4 per cent. more oil than the fully ripened flax grown in other portions of the United States.

"This is, however, only in line with the well established fact that all oil seeds grown on Puget Sound are richer and of greater vitality than those grown elsewhere, either in the United States or in Europe, as illustrated by our Puget Sound grown cauliflower and cabbage seeds having captured the lead in the seed markets. Flax seed being distinctively an oil seed, seems to be equally responsive to our Puget Sound climatic conditions.

"During the season of 1895, working under the auspices of the Department of Agriculture, I had an experimental field of five acres at Ferndale, in Whatcom county. In addition to this, there were thirty-three experiments conducted on a smaller scale. These experiments represented every county bordering on Puget Sound, and may be said to have tested all qualities of land embraced within this district. Although this year's experiments were seriously handicapped by the non-arrival of the seed from Europe until six weeks later than the proper time for sowing (which reduced the yield to only what might be considered one-half crop), the yield even then surpassed that realized in Minnesota and other portions of the United States.

"I had upon one and one-fourth acres sown with 120 pounds of Riga flax seed 3,856 pounds of clean, dry straw, and 17 bushels per acre of seed. On another one and one-fourth acres sown with 90 pounds of the same variety of seed was grown 3,557 pounds of straw and 16.8 bushels per acre of seed, while the average of the best flax crops grown in Minnesota for seed only was but 10 bushels per acre.

"While some of these specimens of flax have been worked up into very creditable fiber, I am hardly at liberty to enter into details upon this branch of the subject, it being as yet under investigation by the United States Department of Agriculture; but I will say that I have received instructions to forward one ton of the flax straw to the celebrated firm of Messrs. Barbour Brothers, of Lisbon, near Belfast, to have it worked up into finished linen at that establishment, thus to secure a practical commercial test of Puget Sound flax fiber—its quality and value.

"In all the experiments of growth of the flax, conducted as they have been in every county of the Puget Sound district, and all varieties of soil therein embraced, but two varieties of soil have been found unadapted to flax, one being newly broken peat, and the other a very dry sandy soil. Everywhere on Puget Sound, except on such land as above described, flax may be grown with success if the requirements of the plant are supplied with ordinary intelligence.

"If we compare the flax plant with wheat, oats and other cereal plants it will be noticed that while wheat, etc., has a habit of stooling and sending out a mass of fibrous roots to feed in the surface soil, flax, on the other hand, has a single tap root penetrating deeply with little hold in the soil and secures its nourishment from the deeper soil. Consequently the requirements for successful flax culture are entirely different from that for other grain crops. The best results in flax culture are gained by deep tillage, well compacted below and with fine tilth on the surface. Weeds and clods are death to flax, hence thorough cultivation is essential in preparing the land, and uniformity in distributing the seed is desirable. In this district the seed should be sown on upland about the first week in April. In a favorable season it may be sown as early as the middle of March.

"A popular impression that flax is an exhausting crop on the land is an erroneous one. If, through ignorance of the habits and requirements of the plant, we plow shallow and sow thinly, giving plenty of room for weed growth, the weeds will grow and exhaust the land. Flax grown on land properly cultivated can be followed with a good crop of wheat without the use of fertilizer, which would not be the case if the fertility of the soil was impaired by the flax. It is not well to attempt to succeed flax with another crop of flax. In fact, four or five years should elapse between croppings of flax. As demonstrated in 1890 by Mr. Otto Lugger, of the Minnesota experiment station, the necessity for this is not caused by the flax exhausting the land, but is the result of the chaff, straw and roots of flax remaining in the ground, which act as poison to a subsequent flax crop, but not to any other crop that may follow it.

"In conclusion I will say that while the culture of flax for fine fibre is only in its infancy in the Puget Sound district, it is nevertheless the nucleus of an immense industry, for it is a well established fact that where the climate and other conditions are specially favorable to the production of fine fibre the flax industry in such locality has become the leading one. This is well illustrated at Belfast, which, from a little country town, became a city of over 200,000 inhabitants entirely through the establishment of the fiber industry and the corelative industries dependent upon it. The same is true in Belgium and in Russia. Puget Sound is one of the few highly favored localities and will follow the same rule in the very near future with accelerated strides."

MINERAL DEPOSITS.

Reliable data and information on the different minerals and mining districts of the State of Washington is so meager that an article on the subject must necessarily be very incomplete and subject to more or less error, both of omission and commission.

The stories of the early gold discoveries along the various streams in the Northwest have been told and repeated times without number and in almost as many different ways. From all these stories may be gleaned one fact, and that is the fact that many of the streams in the new State of Washington were worked for the gold in the gravel. In some instances with profit and in others with discouragingly poor results. The Similkameen, Columbia, Pend d' Oreille, Salmon, Swauk, Sauk, and many lesser streams, enriched the early pioneers who washed with pan, long tom, rocker and sluice, from early dawn to the set of sun, in the third quarter of the present century. Forty years ago nearly every stream of importance was visited by the intrepid placer miner, and many of those who escaped the scalping knife and tomahawk live to tell the story of fabulous diggings long since abandoned or now being worked by more modern methods.

Following in the wake of the primitive placer miner came the free-gold-quartz miner. In consequence of the character of the ores to be found in many sections of this state these miners settled in but few sections of the country, but pushed on into Idaho, Montana, Colorado and other sections of the country in search of the special character of ore which the crude methods of that time would work profitably. The ores in this state, in large part, have the distinction of being refractory and rebellious; requiring the most modern methods of extraction and reduction to make the mining of them profitable. The explanation for this fact is that by comparison the Cascade range and its spurs are modern in their creation, and the excessive precipitation throughout the main part of this section has prevented rapid oxidation. This explanation is made because of the many charges that the State of Washington is not a mineral state to any extent, else there would be more mining development.

Unlike many of its neighbors, the State of Washington had to wait for the inventive genius of man to devise a method for the recovery of the precious and valuable minerals from the refractory and rebellious ores before the mines could be worked with a profit.

The mineral belts of the state, so far as known at this time, extend from the Blue mountains of Asotin county, in a circular manner, along the eastern portion of the state, through the Blackfoot mining district, near Palouse, in Whitman county, northward through Spokane and Stevens counties, in both of which mineral is found of a workable value, and in the latter named of which, mines are being worked in every part of the county; thence west through the Colville reservation and the northern part of Lincoln county, through Okanogan, Whatcom and Skagit, southward along both sides of the Cascade mountains to the Columbia river, which borders the state on the south at that point.

The mines of the Blue mountains are placer and quartz. Placer mining was engaged in early, and is still the source of a limited output. The quartz discoveries are as yet so little developed tha more than a mention of their existence will not be justified in such limited space as this article will occupy. It is fair to state, however, that both silver and gold are found in the quartz of that section

The reader may imagine from the statement above that the mineral belt is continuous throughout the eastern part of the state, but such is not the case. Until the Palouse districts are reached there are no workable mines between that and the Blue mountains, except the opal mines, a few miles from Moscow, Idaho.

The discovery and sale of the opal mines to eastern and loca parties is about all that is known of these valuable discoveries The stones are of great value, and a considerable sum is believed to have been realized from their sale, but the public is not informed on these points.

The Blackfoot mining district was worked for its placers in th early sixties, and this work has been continued down to the prese time to a limited extent. The early miners made high wages and but for the limited supply of water, it would have produced a muc greater quantity of gold. The veins were so deeply covered wi vegetation that their discovery and development is of recent date. At this time, however, several companies and individuals are engaged in systematic mining there. The quartz is highly oxidized to the 100-foot level (the depth of the present workings), little water is encountered, the veins are from two to six feet wide, usually, and the value of the ore is from $5 to $100 per ton in gold. The district is of unknown dimensions, but is several miles across each way.

In the northern part of Spokane county is a gold belt but little explored, but at this time there is one mine, the Spokane Belle, in active operation. The work done consists of a shaft out of which a trial shipment of ore has been made with satisfactory results. The company owning the property is preparing for a steady season's work.

In Stevens county the ore is of great variety and extent. Near Loon lake are several copper properties in a state of development. A sample of ore from one of these properties showed a value in copper, by two assays made, of 12 per cent. and 34 per cent. The veins are of fair size and the ore of good quality, but the work done is limited and, in consequence, accurate estimates cannot be made.

West of Springdale, a few miles, is an extensive mineral belt of copper, silver, lead and gold ores. The Cleveland mine, in the district of the same name, had shipped a large quantity of silver-lead ore and is now being worked under lease. This is the best developed mine in the district, but there are others of merit, though little developed.

The Deer Trail No. 2 is owned by an incorporated company. This is in the Cedar Canyon district, west of the Cleveland district. Over twenty carloads of ore have been shipped from this mine, which netted the owners in the neighborhood of $1,000 per carload in silver. Other properties are now shipping from the same district, and the section is attracting considerable attention.

The Summit Camp north of this is a high grade silver-lead district. Several properties are now being worked there. Several hundred tons of ore, valued at $25 to $100, is on one dump.

Chewelah has been the center of mining activity for eight or ten years and some of its mines have produced thousands of dollars in silver and lead. The Eagle had a pay roll at one time of $2,500 per month, and produced thousands of tons of high grade ore. The Jay Gould is now the most prominent property in the district, with

200 tons of shipping ore on the dumps. Gold, silver, copper and lead constitute the most common minerals, with antimony, bismuth and tellurium reported present.

The Colville district has one mine on which some 10,000 feet of development have been done. This is the Old Dominion. The ore is of high grade, carrying silver and lead, and the present owners, the Old Dominion Mining Company, contemplate several thousand more feet of development before they begin shipping ore extensively. The company has had about forty men employed for the past four years. The former owners have shipped nearly half a million dollars worth of ore from the surface workings of this mine. The property is fully equipped with machinery.

The Daisy, Young America, and Bonanza mines have not been working recently, but each has shipped ore. The last named sustained steady shipments of silver-lead ore for two or three years, but the low prices of those metals compelled the owners to close down. It has now resumed.

There are hundreds of properties in Stevens county of a character to justify the investment of money for their development, and the work is gradually being resumed on some of them.

In the Metaline district are to be found a number of silver-lead mines developed to a limited extent, but the present isolation precludes shipment.

There are several properties of merit carrying silver and lead in what is known as the Cedar Creek district, in the northern portion of the county, near Boundary City. The development on these has been limited to the financial ability of the prospector, though at this time a company is getting control of some of the most meritorious of these prospects with a view of developing them.

The Pend d' Oreille river and the Columbia river has each contributed thousands of dollars in placer gold in Stevens county, and it is a regular custom of some of the residents at this time to wash for a short season each year with which to buy the year's supplies. There are, in addition to those desultory miners, two or three companies who propose to do some extensive hydraulic mining along the Pend d' Oreille during 1896.

The Colville reservation recently thrown open to prespectors and miners contains valuable quartz and placer deposits; gold, silver and copper being the predominating minerals, but the extent, character or value of these are as yet too problematical to more than call attention to their existence. With mineral on three sides of this reservation it is fair to presume, however, that there will be some valuable discoveries made there.

In the extreme northeastern portion of Lincoln county are the Egypt mines of silver and lead. There are the gold prospects north of Reardan and the opal beds near Mondovi, each showing merit but of unknown quantity.

Okanogan county, while the worst maligned county in the whole state, may truthfully be said to be the most marvelous mineral district. The ores are diversified and widely distributed. Not one, but a dozen districts of high merit are known to exist. Lack of proper transportation facilities and limited capital have combined to retard the development of the mines which in other sections or under other conditions would be sustaining a steady output of silver and gold.

The present operations in the upper Okanogan are confined to three or four companies, who, within the past two or three years, have purchased or bonded a large number of properties and are now equipping and developing them. Among these companies are the Bridgeport Mining & Milling Company, the Mt. Chapaca Mining Company, The Triune Gold Mining Company, and Cowherd & Western. Each of these is now engaged in extensive operations in that section lying in the country east of the Methow river and west of the Okanogan. The Triune and Cowherd & Western each has stamp mills in operation, and the other companies are working several properties with proper machinery equipment. The ores are gold and silver.

The Squaw Creek district is on the Methow river, is distinctly a gold camp, has a large number of properties with veins from two to ten feet wide, carrying ore with a value of from $5 to $100, several of which are working. There are one mill and several arastras in the camp, but a large part of the ore is now being shipped. The camp is but eight miles from the boat landing, and cost of transportation and smelting is about $20 or less per ton.

Farther up the Methow are the Twisp, Goat Creek, and at the summit at the head of one tributary is the Slate Creek district, all gold camps of merit, but little developed.

The Chelan basin, from the foot of Chelan lake to the head of the Stehekin river, is about 100 miles long, and from the divide between the lake and the Methow river to the summit of the Cascades on the west, it is in the neighborhood of twenty miles wide at its widest point. This basin is pregnant with mineral deposits, both extensive and valuable.

In the Meadow Creek camp, on the east side of the lake some fifty miles from the foot, there are veins of gold and silver and copper ore of a workable value. The veins vary in width from a few inches to several feet, and the value is from a few ounces in silver to several hundred ounces. In some of these ores there is several dollars in gold, and several of the properties carry copper of a much higher percentage than ores of the same character in other districts. One property showed a value of $8 in gold and over 10 per cent. copper to the ton. This is said to be lower than several other assays from the same mine. Some work is being done in this camp with a view of shipping the ore to the smelter.

The upper part of the Chelan basin is a silver-lead district, veins varying from two feet to twenty occur in porphyry dykes which cut the formation, and the ore has a value of from 45 ounces to several hundred ounces in silver, and from 40 per cent. to 60 per cent. lead per ton. This general description applies to the ores of Bridge creek, Park creek, Agnes creek and the Stehekin river, including Horseshoe basin and Doubtful lake. It will also apply to the ores found near the head of Railroad creek, having its outlet in Lake Chelan. The mines of silver-lead are not of sufficient value to ship by trail several miles, thence by water 60 or more miles, thence wagon-haul of five miles, thence 35 miles by water, and thence by rail 150 miles to the smelter; but with better facilities for transporting the ores, thousands of tons daily would find its way to the market.

The Entiat mineral belt is similar to the mineral belt of Railroad creek, though ores are more base, containing a little more zinc and less value in silver. So little prospecting has been done up this stream that the character or extent of the mineral deposits are not yet determined fully. Some of the south forks of the Entiat form the drainage of a gold and copper section.

The Wenatchee basin, of which the Wenatchee river and its tributaries form the drainage, is divided through its center by the Wenatchee river, which is also the dividing line between Okanogan and Kittitas counties. The Chewawa is the principal stream emptying into the Wenatchee on the north, and up this stream is a rich gold, silver and copper mineral district. Two companies are now working five or six men each on mines which they are developing, and as work progresses the ore becomes more valuable.

There have been numberless discoveries made in that and adjacent localities by men who have not the capital to prosecute work, and which, therefore, practically lie idle.

In Kittitas county are gold mines, both quartz and placer. The placers produce thousands of dollars annually, though the methods of working these mines are crude. The Swauk district alone, however, produced $24,000 of placer gold last year. The Blewett mines are principally gold, and a small placer production is augmented by the output of the quartz mines. The Blewett Mining Company has a twenty stamp mill with plates and concentrators. A tramway about a mile in length conveys the ore from the mine to the mill. In connection with the mill, a cyanide plant has been added. Another quartz mill will be taken into this camp during 1896. About $25,000 was taken from the quartz mines of this district last year.

The Fish Lake and Cle-Elum districts are promising gold camps, but the work there has been limited to the annual labor required by law. It is understood that one of the properties in the Cle-Elum country is to have a mill placed at an early date, and it is understood the mill is now en route.

In the vicinity of Mt. Adams are several unorganized districts, isolated and very little developed, but the miners are encouraged by the assays secured and this year will doubtless determine to a great extent the value of the deposits. The value of the contents lies principally in the gold.

The St. Helens district—so named from the mountain of that name in the vicinity—lies in three counties, Lewis, Cowlitz and Skamania. It is a district of unusual merit, and, because of the lack of proper attention, it deserves a special mention. With ores carrying gold, silver and copper, in no instance free, but having a value of from $5 to over $50 per ton in gold and with from 5 to 15 per cent. copper, it is a district which, were it in any other section of the country, would attract wide attention. Two companies have secured control of about 300 locations in the district and it is said they contemplate extensive development work during this year.

The Snoqualmie district is in the northeastern portion of King county, has gold, silver and lead bearing veins, and the grade of the ores is, generally speaking, good.

The mineral belt of Snohomish county is 20 miles wide and 36 miles long, covering the eastern portion of the county and including the Monte Cristo, Goat Lake, Silver Creek, Troublesome, Sultan, Stillaguamish and North Fork districts, separated from each other by spurs of the Cascade mountains. The same general characteristics prevail throughout the mineral belt, except that a fine grade of copper ores in the Silver Creek, Sultan and Stillaguamish, and bromides and carbonate in the Troublesome, distinguish those districts from their neighbors.

The ores require smelting, and vary in character and value with the nature of the enclosing rocks, which are principally granites and slates. In a majority of the veins the ore is found in porphyry dikes, ranging from 5 to 50 feet in width and cutting the country at right angles, or nearly so, to its structure, and running in a northeasterly and southwesterly direction. A number of the veins are traced by recurring outcroppings through different mountain spurs for distances varying from 5 to 15 miles. The permanency of the veins cannot be doubted, and their productiveness and increased richness with depth have been proven in the different districts. Gold, copper and silver are the predominant minerals in the ores. Their value ranges from $5 to $200 per ton, the greater portion being low grade concentrating ores that occur in large bodies. Three to eight tons of ore can be reduced to one ton of concentrates. Mining and reduction are carried on at minimum expense; in fact, nature has already done the preliminary development work, and supplied timber and water in abundance right at the mines. Great gorges that have been scooped out by glacial action give access to backs on the mines of 3,000 feet in some instances, without the necessity of hoisting machinery or pumps, access to most of the mines being had by tunnels on the veins. Power for drilling and for other mining operations is afforded by numerous streams in close proximity to the mines.

The most extensive quartz mining is being conducted in the Monte Cristo district. The first locations here were made in 1889, but it was not until 1891 that extensive development work was begun.

In the purchase and development of a group of several mines; in the building of a standard gauge railroad to them from Everett, a distance of 60 miles; in the building of a concentrator at the mines with a capacity for reducing 250 tons of ore daily; in the building of a three-stack smelter at Everett with a capacity for smelting 250 tons of ore daily, a syndicate of eastern capitalists, headed by John D. Rockefeller, has expended upwards of $4,000,000. Work on a bullion refinery, to be operated in connection with the smelter and to cost $300,000, has been commenced.

In the mines owned by this syndicate (notably in the Mystery, Pride of the Woods and Pride of the Mountains, which furnish most of the ore handled by the concentrator), these facts have been demonstrated, viz.: That the ore bodies are large and continuous, that they "go down," that the ores improve in quality with depth, and that the mines are paying good profits on the money invested. The three mines above referred to are located on the same vein, and in the near future their entire output will be from one tunnel which is now being extended into the Pride of the Mountains, and which is the outlet for the Mystery and Pride of the Woods. This tunnel is being driven by machine drills operated by air that is compressed by electric machinery.

The other producing mines of the Monte Cristo district are the Golden Chord and the O and B. The Golden Chord ore is somewhat different from that of the others—a concentrating ore containing telluride.

The O and B mine, owned and operated by residents of Snohomish and Sultan, has produced the richest ore thus far uncovered in the district. It is shipped without concentrating or sorting, and is an iron pyrite, carrying a little gray copper, about one-third of the value being gold and two-thirds silver. A wire cable tram carries the ore from the mines to the railroad, a distance of 3,700 feet.

At least 150 claims have been located in this district. The most extensively developed properties that have not yet commenced shipping are the 76, Wilmans, Rainey, Rantoul, Whistler, Keystone, Sidney, Omega, Hannah, Ethel Scotty, and a group owned by the Monte Cristo Gold & Copper Co. The freight rates on ores and concentrates from Monte Cristo are $2.50 per ton, and $2 per ton from Silverton, in the Stillaguamish district.

On the eastern slope of the range dividing Monte Cristo and Goat Lake districts a Pennsylvania syndicate owns a large group of claims, upon which more extensive work has been done than upon any other quartz mining property in this part of the state, excepting at Monte Cristo. This work has demonstrated the continuity of the Pride, Rantoul, Whistler and other Monte Cristo lodes, many of the best properties of the Pennsylvania syndicate being located thereon. Surveys have been made for a tunnel a mile in length to afford the Goat Lake mines a short outlet to the railroad at Monte Cristo. This tunnel, if built, will tap several of the bodies over 3,000 feet below their apex.

Silverton, 15 miles west of Monte Cristo, and on the Monte Cristo railroad, is the center of the Stillaguamish district. Silver Gulch, Anacortes Gulch, Marble Creek and Deer Creek are tributary to this camp, and a large number of claims are located in the vicinity. The ores of this district are much the same as the Monte Cristo ores, with the exception that as this point is in the copper belt, which extends from the head waters of Deer creek in a general southeast direction for a distance of about twenty miles, there are some rich copper ores and a number of promising copper properties.

The Sultan, Silver Creek and Troublesome districts are best reached by the Great Northern Railway. Most prominent among the many good claims located in the Sultan district are the Sultan, Little Chief and Sarah. The Little Chief and several contiguous claims are owned by an English syndicate, which has expended $80,000 in development work. The company has made a survey for a railroad from their property to the Great Northern. The Little Chief is a copper proposition carrying gold, silver, cobalt and nickel.

Seventy or eighty claims have been recently located in the north fork of the Stillaguamish. Little is known of this district.

Silver Creek adjoins Sultan district on the west and Monte Cristo on the north. Silver creek is about nine miles long, flows southerly and empties into the north fork of the Skykomish at Galena. Claims are located the whole length of the stream on either side of the valley. The Vandalia in this district has 300 tons of ore, valued at $40 to $80, ready for shipment.

The Troublesome district lies to the east of the Silver Creek district. This district contains high grade ores. Some claims having bromide ores running as high as $2,000 to the ton.

Placer mining has been carried on by primitive methods on the Sultan river and over $90,000 in gold dust has been taken out. Preparations are being made to work these placers on an extensive scale with modern hydraulic machinery.

The eastern portion of Skagit county abounds in mineral, both quartz and placer. The placers are worked each season to a limited extent, but only by primitive methods. The quartz mines, which are mainly argentiferous galena, are lying idle for want of proper transportation facilities. The Cascade mining district is the largest silver-lead district of this locality, and veins of mineral from two to ten feet wide, the ore of which assays from 40 per cent. to 75 per cent. lead, and from 35 ounces to 200 ounces silver, seam and intersect the country. Separated from this district by a spur from the Cascade range, to the north, is the Thunder Creek district, the ores from which are similar in character. A newer district, embracing free-gold quartz, copper and nickel, is known as the Baker River district, taking its name from the river on which it is located.

Besides the precious minerals of Skagit county, there are deposits of marble on Cascade creek susceptible to high polish, and of firm, unbroken texture; iron ledges in the Sauk mountain and in Iron mountain, both on Skagit river. These ores embrace brown hematite, magnetic, chrome and strap irons, and some of them have been proven to be of high commercial value; especially so as they are immediately contiguous to large deposits of limestone at Baker river and extensive measures of coking coal centering at Hamilton. Asbestos, found in quantities on Day creek in Skagit county, varies in quality from the ore of which paint is made to strong, bright fiber, two to six inches in length.

One of the oldest placer mining fields of this locality is on Ruby creek, in Whatcom county, where placers have been worked more or less continuously since 1883, and with varying success. Owing to the remoteness of the district and the fickle results attending efforts in this direction, no extensive operations have been conducted here.

The quartz lodes of Slate creek district are in a portion of the water shed crowning the Ruby placer fields, and while assays from this district show high value in gold, this discovery is so recent and development so meager as to fail to justify the venture of a prediction as to its future.

A mineral district of recent discovery lies near the base of Mount Baker, in the water shed of Baker river, that contains a variety of the precious minerals, but the district is as yet undeveloped—not even thoroughly prospected.

A small mountain of glass sand, about five miles east of Sumas, near the British boundary line, is found to make an excellent quality of glass. Some $5,000 have been expended on the development of this property, and its promise justifies the expenditure.

The most accessible quarry of building sandstone on the shores of Puget Sound is well developed at Chuckanut, crowning the Southern portion of Bellingham Bay. The ledge is 50 feet in thickness and is a bluish grey in color, of a texture well adapted to sustaining heavy weight. So admirably situated is this quarry as to enable ocean steamers to anchor at the quarry wharf. The quarry is well equipped with machinery, and its output has contributed much to the upbuilding of that section of country.

The counties in which gold or silver, or both, have been found in paying quantities are Asotin, Whitman, Spokane, Stevens, Lincoln, Okanogan, Kittitas, Yakima, Klickitat, Cowlitz, Skamania, Lewis, Pierce, King, Snohomish, Skagit and Whatcom. Lead associated with the silver is also found in nearly all the counties here enumerated. If any county or district has been overlooked it is due to the fact that information is not at hand whereon to base any statement.

COAL MEASURES, MINES AND MINING.

Hon. T. B. Corey, who had long experience in the conduct of large coal mining interests of the State of Illinois, and under whose superintendence the Oregon Improvement Company's large mining interests in King county were developed and for some years conducted, has made a careful and scientific study of the coal deposits of Washington, including the formation with which they are surrounded. To him is due the credit for the fair, impartial treatment of this subject which follows:

It would be a very difficult task to go into a detailed statement of the various coals found in this state, owing to the diversified condition of the coal beds; in fact, I doubt very much if there is any state in the union where there is such a variety of coal. There has already been found coal from the lowest grade of lignite to the highest grade of anthracite. As yet the coal industry of this state is only in its infancy. Hardly a month passes but what new discoveries are made, and some of them considered valuable. Most of the discoveries so far have been made by accident rather than by any preconceived plan of prospecting.

Commencing at the western portion of the state, the veins as exposed show hardly anything but woody matter; but as we go east to the Cascade mountains the coal increases in richness until we find a very good quality of anthracite.

It is also true as we approach the Cascades the strata are more irregular; in fact, in the bituminous districts there seems to be no regularity whatever, but the strata being more or less broken up with anticlinals and synclinals. East of the mountains the veins run a great deal more regularly and the angle of the dip is not so great.

Commencing at the northwestern part of the state, there are three or four seams of high grade bituminous coal and a few lignite seams. The coal measures are all underlain with clay schists and metamorphic slates, and this fact shows that they are in an upheaval; the coal measures, consequently, are in a very disturbed condition. The coal does not run regularly, but what is known as "pockety;" that is, the seams pinch to nothing or thicken to abnormal size. The seam nearest the schists, which is sometimes only two or three feet from them, are richest in carbon and lowest in moisture, the higher ones gradually losing carbon as they recede from the schists, and those on the Skagit river yield a coke equal to any made in the United States.

This coal district is in the region of Skagit river, Lake Whatcom and Nooksack river, and extends almost to the Canadian line. The dips are from 50° to vertical. Around Lake Whatcom to the northwest, Skagit river, southwest, and at Nooksack river, the dip is very changeable, although in general terms it may be said to be north or south, depending on which slope of the great anticlinal and synclinal folds the seams are exposed. The area of this section is about 360 square miles. The coal around Hamilton on the Skagit river, is very rich in carbon. There are four distinct seams, dipping at an angle of about 45°. There are also here large seams of iron ore which are exposed to view on the Skagit river. For miles south of this there are strong indications of coal, and some very good veins have already been discovered. Around Hamilton the coal seams are more regular than in any part of the field in the northwestern part of the state. At Cokedale, which is west of Hamilton, are two or more seams of coal. Quite a number of coke ovens have been erected, about one-third of the output being made into coke, and an excellent coke it makes, too, which, as I have before stated, is equal to any in the United States. This coke being so near the iron ore will be accessible for smelting iron. The coal veins run from thirty feet to one foot in thickness and dip at various angles. North and west of Cokedale is the Blue Canyon coal mine, which is located on the eastern shore of Lake Whatcom. The vein varies from twenty feet to one foot, and has not the coking qualities of the Skagit coal, but is a good gas coal; dips northwest 30°. The seam rests on the clay slates, which are soft and swell, causing considerable trouble in mining.

The company operating at this place has expended large sums of money in erecting bunkers and a large boat to transfer railroad cars across the lake at the foot of the mountain to a railroad which carries the coal to New Whatcom. From thence it is conveyed to the coast towns by ships. New Whatcom is located on Bellingham Bay. Near this bay the first coal in this state was discovered and mined for the Hudson Bay Company's steamers some forty years ago. The vein is from ten to twelve feet in thickness, and is found in the upper measures of the cretaceous; it is a lignite, and is not underlain by metamorphic slates. It dips to the northwest. On the west side of Lake Whatcom there are several small seams of coal, but not in sufficient quantities to make them workable. South of this is Chuckanut Bay, where the coal measures crop out for miles, showing an enormous thickness, but no veins as yet have been discovered which are considered to be of any value. The measures end abruptly in the northwest corner of Skagit county. Going north of New Whatcom the country is flat, and consequently no exposures are to be seen. The coal on the Nooksack river is all high grade, but the seams are thin. The productive part of this field is nearly all on the eastern range, or nearest to the mountains. All through almost the entire northwestern part of Skagit county the country is very mountainous and broken, and is densely covered with timber—fir, cedar and hemlock—the finest in the world.

Farther west, near Port Townsend, coal measures are to be seen and several small seams of coal, but as yet nothing to justify starting a plant.

In Snohomish county there have been several veins discovered, but from the best information I have no developments have been made to justify an opinion as to their worth.

Next is King county, which is the largest and most developed coal field in the state. There are two classes of coal in this county, one a high grade of lignite, which has an area of about 120 square miles; the other a bituminous, which covers about 300 square miles. They no doubt belong to the cretaceous epoch, the lignites being in the upper and the bituminous being in the lower; the bituminous coal lying in closer proximity to igneous agencies, which by their heat and pressure, have driven off volatile gases and moisture, resulting in a higher grade of coal. For this reason the quality of bituminous coal is improved as it approaches the mountains, and is often of strong coking quality, but the regularity of the seam is destroyed. The lignite of this county must not be confounded with the lignites of the tertiaries found farther to the south, from which they differ as materially as oak does from cottonwood for heating purposes. These lignites have great heating qualities, while those of the tertiaries are not much better than "brown coal." The general dip of the lignite seams is apparently to the north, then again a little west of north, while in the bituminous district there seems to be no regularity whatever, but the strata are more or less broken up with anticlinals and synclinals, and in this part of the field, as they run into or approach the mountains, they become very much distorted; but the coal becomes much richer (in some cases almost coke), yet so broken as to almost discourage any one from attempting to utilize it. No better place in the State of Washington can be found where the measures are so exposed as to show the peculiarities of contracted strata than in section 8, township 21, range 7 east, Green river canyon. At one point the seam is seen emerging from the river and rising into the exposed side of the river bank, then it turns over again and disappears in the river in the opposite direction, all in a distance of a little over 100 feet. At the point where it turns over, in the fissures at the top of the seam and by the squeezed and contracted condition of the bottom, can be distinctly seen the crushing it has been subjected to.

Nearly the whole of King county is covered with drift carried down by glaciers from the Cascade mountains during the glacial epoch of the quarternary period, which has in some instances covered the ground to a depth of 300 feet. Thus, were it not for the rivers and water courses, bed rock would seldom be seen.

In journeying closer to the mountains the eruptive rocks become plentiful and the coal measures gradually disappear, only to be seen again in small, isolated, barren patches.

The mines at Durham and Kangley are on the eastern edge of this field.

At Issaquah (formerly Gilman) there are five seams of coal varying in thickness from three feet to eight feet between walls, dipping at an angle of about 35°. This coal is a lignite. The mine is forty-two miles from Seattle by rail, and fifteen miles in a direct line.

Newcastle is four miles west of Issaquah; is a new mine, the old one having been abandoned. There are here four lignite veins, which are being worked, averaging about five feet in thickness. Dips to the north about 40°.

Renton, about five miles southwest, is working one vein (lignite) about seven feet in thickness, dipping 12° east. This mine has just been started after a shut down of some years. There is also another mine just being started at this place, but as yet coal has not been reached.

Cedar Mountain, which is some six miles east of Renton, has just been reopened, after lying idle for three years. There is here a twelve-foot vein of lignite coal.

At the next town east of this, which is Maple Valley, the Danville Coal Company has begun development work on a six-foot vein, which bids fair to become a good mine.

At Black Diamond, still farther south and east, there are three workable bituminous veins respectively five, six and seven feet in thickness.

There is also a new slope being sunk to a first-class vein of coal.

Three miles south of this, on Green river, is located the Denny mine. It is a six-foot vein, and is used exclusively by the Denny Clay Company at Seattle.

Next we come to Franklin, also located on Green river, where there are three mines, one having just been opened. They have a three and a six-foot vein of bituminous coal, which are being worked. There is also here a forty-foot vein, which is worked to a small extent.

The Black Diamond and Franklin coal is an excellent steam coal, most of it finding a market in San Francisco.

Beyond this is Kangley, Cokedale, Alta and Durham, at which places there are six or seven veins of coal ranging in thickness from three to ten feet. The last three places named are not working at present. There has been more development work done at Kangley than at any of these places. It has the longest slope in Western Washington, which is about 1,500 feet in length.

Scattered all along from one mile south of Palmer to as far north as Grand Ridge are dozens of holes and tunnels, on some of which considerable work has been done, especially so on those at Sherwoods, Raging Creek and Niblock.

East of Franklin about three miles, on the Northern Pacific Railroad, are the American, Eureka and Navy mines. The American has from four to five feet of bituminous coal, which they are working, and also two or three veins on which some prospecting has been done. The Eureka has about the same number of veins. The Navy mine has four or five workable veins, which will average about four feet in thickness. These mines have made considerable improvement during the last three or four years.

In Pierce county we find a field small in area, not over 100 square miles, but rich in the number and thickness of its seams. The coal is of an excellent quality, of which the numerous mines situated in the belt ship large quantities to San Francisco and the cities of Puget Sound, besides the great amount made into coke at Wilkeson, which is shipped as far east as Helena, Mont. This field commences at Burnett and extends in a due south line to the Nisqually river, a distance of about twenty-six miles. It is known as the Wilkeson coal field. A portion of this district is broken up by dykes. There are nine or ten workable seams, dipping from 35° to perpendicular.

Commencing at the southern end of the county the coal is exposed, overlooking the valley of the Nisqually river. From this point north to Wilkeson it is an unbroken wilderness. The coal crops out from the flanks of the steep mountain side, dipping usually to the east at heavy angles. The ground is covered with a magnificent growth of pine, fir and cedar trees. Over all stands Mount Rainier, 14,444 feet high, and about twelve miles distant.

At the northern end of this field several of the branches of the Northern Pacific Railroad have been built up to the mines at Carbonado, Wilkeson, Burnett, Pittsburg and Acme. Carbonado shows great signs of disturbance, but the seams are so numerous and aggregate so great a thickness of coal that large outputs can easily be kept up. This is the largest producing mine in the county, if not in the state.

At Wilkeson there are two mines opened on the opposite sides of the anticlinal fold. The Wilkeson coal is used as a standard by the United States government in making comparisons of coal in this western country.

At Burnett, which is four miles farther north, at which place the South Prairie Coal Company is operating, there are two or more workable seams, dipping to the west. This coal is of great value, producing about 10,000 cubic feet of gas per ton, and is used extensively at all the Pacific coast cities for making gas.

At Pittsburg and Acme, which are farther east from Burnett, and situated on the same creek, considerable work has been done. I think it can be said, beyond a doubt, that the Burnett seams are the same as those at Wilkeson and Carbonado. The veins vary in thickness from three to nine feet.

We now come to Lewis county. Its coal fields are divided about as follows: Anthracite, 72 square miles; bituminous, 216 square miles, and lignite, 180 square miles. In the western portion of this county the lignite veins appear dipping at an angle of about 10°. Very little as yet is known about the lignite seams. One opening has been made at Bucoda, three at Centralia and one at Chehalis. Nothing south of this has been discovered worth mentioning. As we go east we find a rich bituminous field of coal, as yet undeveloped, owing to lack of transportation. This is no doubt a continuation of the Wilkeson coal field, and the coal is considered equally as good. There are quite a number of veins exposed, varying from two to fifteen feet between walls. This coal makes excellent coke.

Still farther east is the anthracite field, but not developed for previously mentioned reason, lack of transportation. These deposits are very much mixed, and it is at this time a difficult matter to place any estimate as to their utility; but there will, no doubt, at some future time be considerable coal produced in this section of Lewis county.

In Cowlitz county, which is south of Lewis county, there are two small mines in operation, one at Castle Rock and the other at Kelso, both mining lignite coal.

Crossing the Cascades into Kittitas county, we come to Roslyn, where the Northern Pacific Company's mines are located. Here over a quarter of a million tons are mined annually, and they could produce half a million if demanded. This vein is about five feet in thickness and dips from 8 to 17 degrees south; it is a splendid steam coal and used mostly by the railroads. There are three mines at this place, and there is also one, perhaps two, small mines adjoining this field.

At Cle-Elum there is a mine which is working a seam overlaying the Roslyn, and is about four and a half feet in thickness. To my knowledge all the coal discovered east of the Cascade mountains is in this county, and comprises an area of about 300 square miles.

So it is seen that the combined coal fields of the State of Washington cover an area of 1,650 square miles, as far as is at present known. At the rate of the present consumption this will not be consumed for several hundred years.

There are at present only thirty-two mines in operation, giving employment to about 5,000 men.

The Blue Canyon, Fairhaven, Black Diamond, Franklin, Kangley, Navy, South Prairie and Roslyn coal has all been tested by the United States navy, and on the whole has proved to be satisfactory.

All Washington coal is brought into competition with that of England, Australia and Vancouver Island, and compares very favorably, and were it not from the fact that this foreign coal is to a great extent brought over as ballast (consequently landed on our shores very cheap) and the low tariff, it would not be long before Washington would supply the whole western country.

There never has been a geological survey made of this state, consequently many errors may have slipped into this article, but on the whole I think it to be correct. It would be a life's task to arrive at the true geological formations of the state. The mountainous country, the heavy timber and undergrowth, the wash or superficial deposits, completely cover up the strata, making it a herculean undertaking. This being the condition, the mineral wealth of Washington has only begun to be discovered.

There can be no doubt that the time is fast approaching when Washington will be the greatest state in the union for its various and vast mineral resources.

HORTICULTURAL INDUSTRIES.

At the close of the year 1895, the area devoted to fruit culture in the State of Washington was 55,000 acres. Of this about 10,000 acres was planted last year, and more than half of the entire acreage has been planted during the last four years. The acreage is about equally divided, one-half on each side of the Cascade mountains. In the eastern part of the state the farms are in larger tracts, generally ranging from 20 acres to several hundred acres each, under one management, while in the western part of the state the orchards are of smaller size, but more numerous.

The acreage in bearing in 1895 was about 20,000, covering all kinds of large and small fruits. Of prunes and plums the crop aggregated 16,000,000 pounds, of which 3,000,000 pounds were evaporated.

ADAPTED TO HORTICULTURE.

There are three principal reasons why fruit culture has increased so rapidly during the past few years and is now continuing to do so: First, because the climate above all else determines what are the successful fruit belts. The Japan current of the Pacific ocean so modifies the conditions of this state that the temperature is free from extremes of heat and cold, mild, and in some sections humid, throughout the entire year, affording to nature just what is desired for producing fruit of very large sizes and of fine flavor. Because of these conditions annual fruit crops can be depended upon almost to a certainty. Second, it was realized last year more than ever before that as the forests are being cleared away, lumber markets rather quiet, and but little demand for employment in the different manufacturing industries, fruit culture is offering a new field for those desiring independent homes; and thus many have turned from the temporary to that which is a more permanent occupation—horticulture. Third, because markets and the facilities for marketing are improving every year. During 1895, over 15,000 crates of red raspberries and blackberries were shipped from Puget Sound points to Montana, the Dakotas and Wyoming. These crates consisted of 24 one-pound boxes each. One hundred carloads of dried prunes, the greater part of which was No. 1 grade, was sold in the eastern markets and netted an average to the growers of $75 per acre.

Prunes, pears and cherries in the green (fresh) state were carried successfully to Chicago, also to points on the Atlantic coast. Facilities are being prepared to reach small interior towns of the central states direct from the orchards and fruit farms. Besides five transcontinental railroads entering the state, it is the most direct point touching oriental commerce, and last year experimental shipments were made to Asiatic ports with satisfactory results.

THE KINDS, HOW AND WHERE GROWN.

Clarke county is known as the leading prune section of the state. The crop in 1895 was nearly 2,000,000 pounds, the export being eighty carloads from 1,000 acres of bearing orchards. The total acreage of the prune in that county is 4,000. Prune crops are produced successfully and with fruit of the highest grades in nearly every county of Western Washington; also on the valley lands of Eastern Washington, but the orchards in those sections are more diversified.

The Snake river, Walla Walla, Columbia and Yakima river valleys are the leading peach, apricot and grape sections of the state, because these fruits require a warmer temperature than the prune, apple, pear, cherry or other small fruits. In these valleys are found the suitable volcanic ash soils which require only the water and the usual summer heat of those districts to produce the most luscious peaches and grapes of large size and fine flavor.

In the southeastern portion of the state, consisting of Asotin, Columbia, Garfield, Walla Walla and Whitman counties, the varieties under cultivation are much diversified. Walla Walla, the "Garden City," begins shipping vegetables in early spring, and these are followed during the season by strawberries, early pears, peaches, plums, prunes, grapes and winter apples. In 1895, 450 carloads were exported from that valley, of which 205 were fruit and 245 vegetables. In fruits apples, peaches and strawberries have been given the most attention. Along Snake river in Whitman county the peach is the leading commercial fruit. The orchards, being sheltered by tall bluffs crowning the valley, crops rarely, if ever, fail. Apples, plums, prunes, grapes and cherries are also exported. The bearing orchards along the river from Asotin to the mouth of the Palouse river, a distance of 90 miles, comprise about 3,000 acres. The yield was heavy in all varieties last year.

Large apple orchards were planted last season throughout sections of the "Palouse country;" also in the counties of Lincoln, Spokane and Stevens, this class of fruit being well adapted to that section.

In Douglas county over 6,000 acres have been planted with fruit trees, a large portion of which was put in last year, but the acreage in bearing, which is already large, produces some of the finest specimens of peaches, grapes and apples which could be found upon the markets, wherever offered for sale.

The export from Yakima county last year was 30 carloads of fruit, principally peaches, apples and prunes; of the latter 120 tons were evaporated. About 5,000 acres have been planted with the different classes of fruit, but the orchards are mostly young. Klickitat county also produces large peach, grape and apple crops, while in Kittitas county the apple is the leading class produced.

Adjacent to the Puget Sound markets there are 1,500 acres devoted to the culture of small fruits, consisting of strawberries, red raspberries, blackberries, gooseberries and currants. As usual, the crops of these fruits were large last season. In strawberries, yields are generally quoted at from 2,000 to 3,000 pounds per acre. These and the currants and gooseberries are planted largely on clay soils, while the raspberries and blackberries are planted on sandy loam valley soils, and yield, with average cultivation, from three to four tons per acre. Eight carloads of strawberries were sent to the St. Paul and Chicago markets from Puget Sound last year. During the early part of the season, while berries were of firm texture, the shipments were successful and profitable, but fruit shipped during the late season and immediately after a rain, failed to arrive in good condition.

In the northwestern part of the state, comprising the island counties, also Whatcom, Skagit, Snohomish and Jefferson, the apple is the leading fruit cultivated. Prunes, plums, cherries and the small fruits are also grown largely for export.

The cherry is specially suited in the humid atmosphere of Western Washington, and it is grown with considerable profit. Trees begin bearing while young, at four and five years after planting. The price paid last year was four cents per pound in the orchard. Trees at the age of twenty to twenty-five years in each of several counties produced, each, from 800 to 1,000 pounds of fruit. This crop bids fair to be one of the most profitable for export.

In Thurston, Mason, Chehalis and Pacific counties, cranberry culture is given some attention. The marshes covered over 100 acres in 1895.

NURSERIES.

There are now 1,000 acres devoted to the nursery business in the state. A large trade was reported last year, the principal demand being for winter apple and prune trees.

The trees planted in commercial orchards of prunes are mostly yearlings, from the bud, the roots being two years old. Trees of this age attain to the height of from four to seven feet, are smooth and well suited for transplanting. For the apple and pear two-year-olds are usually selected, the root being three years old. The nurseries produce a fine grade of trees well suited to the requirements of the state, and as a rule, the stock is smooth, thrifty and free from fruit pests. The fruit industry of the state is well protected from unscrupulous nurserymen. To engage in the nursery business a license is required, which is obtained by first filing a bond, with two sureties, in the sum of $3,000, providing that the principal will pay for the inspection and destruction of all infested nursery stock. The board of horticulture has seized and destroyed infested fruit trees which were imported into the state last fall.

MARKET GARDENING IN WESTERN WASHINGTON.

In the western part of the state and adjacent to the Puget Sound markets, 5,000 acres are devoted to market gardening. Thousands of carloads of these crops are produced annually, mostly from the valley soils, which are peculiarly adapted to the production of vegetables. All leguminous and saline plants grow luxuriantly, and the year just closed has domonstrated that the market for such crops as celery and asparagus are much more extensive than the products from the increased acreage could supply. From the profits realized in growing them it is evident that these crops will soon be grown for export in large quantities. All varieties of peas yield abundantly, and a succession of crops can be grown, so that this bids fair to become a valuable canning crop.

AS A FIELD FOR PRESERVING AND CANNING.

The small fruits are now produced in such quantities in the western part of the state that a surplus above the local market demand and of such fruits as are not in firm condition for long distance shipping may be bought at very low rates and in sufficient quantity to warrant the establishment and operation of preserving and jamming factories.

In the peach and apricot sections of Eastern Washington there is now an inviting field for canneries. Besides these fruits, which are canned to a greater extent than other varieties, tomatoes, beans and other vegetables are produced by the ton at very low rates. For preserving or canning purposes, the different varieties of fruits and vegetables can be contracted to be grown in quantities at extremely low rates, and the quality is of the very best of each of the kinds grown and packed for commercial trade.

GENERAL CONDITIONS AND VALUATIONS.

The orchards of the state, being carefully guarded, are comparatively free from serious insect pests. Fruit growers adopted systematic spraying last year more than ever before, and are now making it a part of regular orchard culture. To produce fruit entirely free from the injury of insects and from fungous diseases can be done at a cost not to exceed five cents per bushel of the fruit.

A conservative estimate of the value of the fruit and vegetable crop of 1895 is $2,750,000, and as the orchards now being planted are for commercial purposes and many new ones are just coming into bearing, the increased value will be in a greater ratio than that of the past two years.

STATE EDUCATIONAL INSTITUTIONS.

THE UNIVERSITY.

In addition to her excellent system of public common schools, the State of Washington possesses a list of higher institutions for public education that many an older state would be proud of. At the head of this system is the University of Washington, located at Seattle. This institution, founded in 1862, was known as the Territorial University. For years it struggled for an existence, furnishing such facilities for education as a meager endowment from a sparsely peopled territory would warrant. But the foundation for a bright future was laid, and with the impetus of statehood came to the univesity such growth as soon carried it beyond the confines of its territorial environments. Its advancement has been such as could scarcely have been expected by its most sanguine friends, until it stands to-day as one of the prominent western universities. It has a public land endowment from the United States of 46,080 acres of land, and its campus, halls, dormitories, laboratories and apparatus are worth at least a quarter million dollars. It has a faculty of twenty teachers, the faculty being under the presidency of Dr. Mark W. Harrington, late chief of the weather bureau of the United States, and formerly of the chair of meteorology in the Ann Arbor University of Michigan. The curriculum of the Washington State University embraces Philosophy, Greek, Latin, Mathematics and Astronomy, Natural Science, Physical Science, Modern Languages, English Literature and History, and Pedagogy.

AGRICULTURAL COLLEGE AND SCHOOL OF SCIENCE.

This twin institution is located at Pullman, Whitman county, in the eastern portion of the state, and enjoys a magnificent endowment from the United States government, having a grant of 90,000 acres of land bestowed upon the agricultural school and 100,000 acres upon the school of science. In addition to these, this college receives from the United States an annuity of $15,000 for agricultural and scientific investigation, printing and distributing bulletins of results, etc. Another endowment bestowed upon this institution by the United States, is a graduated allowance, now amounting to $21,000, and to remain at $25,000 a year when that is reached—in 1900. This annual provision is for instruction in agriculture, the mechanic arts, English language, and the various branches of mathematical, physical, natural and economic science. Conducted as a part of the agricultural college are two federal experiment stations, one of which is at Pullman, and the other at Puyallup, in Pierce county. The experimentations here conducted are proving of great value to the agricultural and horticultural interests of the state, through the bulletins that are issued from time to time. The college was founded in 1891, and such has been its growth that it already has a faculty of twenty able instructors. It embraces in its curriculum the following branches of study: Mathematics and Civil Engineering, Chemistry, Botany and Zoölogy, Agriculture, Horticulture, English Language and Literature, Economic Science and History, Mechanical Engineering, and Military Science and Tactics. Supplemental courses are offered also in German, French, Latin and Physics. The agricultural college is splendidly equipped with college hall, dormitories, laboratories, and mechanical appliances and apparatus.

NORMAL SCHOOLS.

Abundant provisions have been made for the training of Washington teachers, prominent among which was the granting by congress to the state of 100,000 acres of land for the maintenance of normal schools. The state legislature has established three normal schools, one of which is located at Cheney, Spokane county, the second at Ellensburg, in Kittitas county, and the third in Whatcom county, between Fairhaven and New Whatcom. This latter, designed to serve the interests of Western Washington, was called into existence by the legislature of 1895, and its construction is not yet completed. The normal school at Ellensburg is well established in its own handsome property, and has a faculty of nine able teachers. Its central location and enviable reputation have contributed greatly to its success.

The school at Cheney, in Spokane county, also has a "home of its own," and its faculty numbers eight teachers. The normal schools are under the management of a central board, composed of members of the local boards for the respective institutions, so their management and courses of study are not only similar, but the work done in the schools compares very favorably with that of much older institutions. Two courses of study are offered in each of them, one requiring four years and the other but two years for its completion. They already have exerted a salient influence upon the common schools of the state in raising the educational standard of their teachers.

SCHOOL FOR DEFECTIVE YOUTH.

This school is located at Vancouver, Clarke county, and its faculty embraces sixteen able instructors. Its local property is a valuable one, and a fair proportion of the government's grant to the state of 200,000 acres of land bestowed upon charitable, educational, penal and reformatory institutions, not classified by the terms of the grant, enables the state to care for the unfortunate of this class in a way that prepares them to enjoy life to the fullest extent possible to their condition.

REFORM SCHOOL.

The reform school, located at Chehalis, in Lewis county, is a model of its class. The management is kindly considerate of the unfortunate youth entrusted to its care, and every effort is made to implant within the youthful breast such principles and to inculcate such habits as contribute to the character and usefulness of the citizen of mature years. Ten teachers are employed in this institution, and the tact with which they guide the children committed to their guidance is quite remarkable, manifesting itself not only in the classroom, but upon the grounds about the institution as well. This school, too, is liberally endowed from the public grants of land.

Altogether, the means provided for the education of all classes of her youth and for the advancement of science and the mechanic arts is a matter of congratulation to this young state, and places her far in advance of many of her sister states with opportunities fully equal at a like age.

TO ENCOURAGE HOME PRODUCT.

Under the presidency and general management of Mrs. Julia Widgery-Slaughter, of Tacoma, the women of Washington are to be accredited with the organization of the only state society in the United States having for its object the encouragement of patronage of home industry. The organization pledges its members to patronize home products and manufactures whenever possible. A trade-mark designed by the president and adopted by the society is applied to the label of home products found worthy of home support to distinguish them from the undeserving. Active branches of this organization have been formed in Seattle, Tacoma, Olympia, New Whatcom and South Tacoma, and the ladies of Spokane, Yakima, Everett and other principal cities are taking steps for the organization of local branches. Meetings are held monthly. Testing committees, whose duty it is to report on the merits of home products, are provided. The meetings are made interesting with papers and discussion of topics of domestic interest, such as flours, lumber, fish, vegetables, dairy, etc. The membership, already large, is constantly growing.

MISCELLANEOUS STATISTICS.

SHIP BUILDING IN THE STATE OF WASHINGTON.

The following table shows a detailed list of the vessels built in the state during 1895.

Name of vessel, and rig.	*Length.....*	*Breadth.....*	*Depth.......*	*Gross tonnage.......*	*Net tonnage.......*	*Where built, and home port.*
M. M. Morrill, schooner..........	60.0	18.3	7.8	45.46	43.19	Seattle, Seattle.
City of Shelton, st'r, st'rn wh..	99.8	20.5	6.0	190.95	138.89	Shelton, Shelton.
Archer, barkentine..................	185.2	31.6	11.1	900.14	855.14	Pt. Towns'd, Pt. Towns'd.
Floyberg, schooner................	34.8	11.3	4.8	12.82	12.18	Seattle, Seattle.
Bering Sea, schooner.............	73.0	19.6	7.0	48.45	46.18	Tacoma, Tacoma.
Elsie, schooner........................	67.7	20.6	7.5	59.87	56.88	Pt. Towns'd, Pt. Towns'd.
Jessie, schooner......................	54.4	17.3	6.9	38.25	36.34	Port Angeles, Pt. Angeles.
Rob Roy, schooner..................	29.0	11.5	2.8	10.68	10.15	Ballard, Seattle.
Mystic, steam screw	47.8	15.0	6.5	27.52	13.76	Seattle, Seattle.
Linda, sloop............................	36.9	14.0	5.5	9.09	8.64	Seattle, Seattle.
Comet, sloop...........................	27.5	9.3	5.0	5.70	5.42	Tacoma, Seattle.
Prospect, vapor sloop............	47.5	15.0	6.9	27.24	25.88	Utsalady, Seattle.
Baltic, schooner......................	63.5	16.0	4.3	34.86	33.12	Edison, Port Townsend.
City of Columbia, st'm screw..	41.8	12.2	3.7	23.12	16.95	Seattle, Seattle
Alley, schooner.......................	29.6	7.9	3.6	6.06	5.76	Georgetown, Georgetown.
Doncaster, schooner	52.0	15.3	6.2	22.44	21.32	Tacoma, Tacoma.
Crystal, schooner.....................	48.6	15.2	6.8	34.23	32.52	Tacoma, Tacoma.
Elfin, steam screw...................	68.6	13.5	4.5	32.29	29.07	Houghton, Houghton.
Lizzie B, schooner..................	43.5	13.5	5.8	21.57	20.50	Ballard, Seattle.
Ben, sloop...............................	26.8	10.5	3.3	6.79	6.79	Seattle, Seattle.
Eclipse, steam screw..............	45.2	13.0	4.6	17.67	7.84	———, Port Madison.
Alice, schooner.......................	29.1	10.6	3.6	7.49	7.49	Vashon Island, Seattle.
Liberty, sloop..........................	25.6	13.8	4.5	10.39	10.39	Seattle, Seattle.
Trilby, schooner......................	32.2	11.7	3.6	10.17	10.17	Seattle, Seattle.
White Star, sloop....................	30.6	11.2	5.9	8.18	8.18	Seattle, Seattle.
Kate, schooner.:......................	32.2	11.6	2.0	10.89	10.89	Burton, Burton.
Dauntless, schooner................	39.3	13.0	4.7	12.19	11.59	Everett, Everett.
Maria, sloop.	31.6	10.7	3.3	6.70	6.70	Seattle, Seattle.
Market Boy, naphtha launch..	33.0	10.4	2.3	10.54	10.54	Hoquiam, Hoquiam.
Nancy, sloop...........................	34.2	10.1	3.1	8.04	8.04	Seattle, Seattle.
Apollo, sloop......	28.7	10.5	3.0	5.11	5.11	Seattle, Seattle.
Plymouth Rock, schooner......	32.0	13.2	4.5	10.85	10.85	Anacortes, Anacortes.
Comus, sloop...........................	30.0	10.0	4.0	5.60	5.60	Port Angeles, Pt. Blakeley.
Buckeye, steam screw............	61.5	19.8	7.1	87.48	59.49	Newhall, Newhall.
Nokomis, schooner..................	161.2	36.7	12.8	545.68	462.42	Pt. Blakeley, S. Francisco.
D. T. Denny, steam screw..	46.2	12.7	4.6	25.58	17.40	Seattle, Seattle.
John A. Campbell, schooner...	161.2	36.7	12.8	545.68	462.42	Pt. Blakeley, S. Francisco.
T. W. Lake, steam screw........	96.5	24.9	6.8	191.54	130.25	Ballard, La Conner.
Cora S., schooner....................	35.8	11.3	3.0	8.97	8.97	Newell, Newell.
Dorothy, schooner..........	42.8	11.0	4.2	13.18	9.14	Edwards, Edwards.
Lucero, naphtha launch.........	92.0	16.2	....	59.72	21.79	Seattle, San Francisco.
Okanogan, schooner...............	186.4	39.0	13.9	721.39	606.09	Port Blakeley, Pt. Gamble.
Reef, steamer..........................	34.3	9.1	3.5	12.27	8.34	Ballard, Ballard.
Surf Duck, schooner...............	30.1	9.3	4.2	7.37	7.37	Pt. Blakeley, Hok River.
G. Vasa, sloop.........................	30.4	10.7	4.0	7.58	7.58	Paulsbo, Paulsbo.

MERCHANDISE IMPORTED.

TABLE showing the amount of merchandise imported into the United States through the Puget Sound customs district destined for interior points in the United States.

Month.	*British Columbia.*			*China.*			*Hongkong.*		
	Free	Dutiable	Total	Free	Dutiable	Total	Free	Dutiable	Total
1894.									
December	$8,159	$1,937	$10,096	$131,458	....	$131,458	$41,713	$3,450	$45,163
1895.									
January	817	1,376	2,193	61,582	$2,393	63,975	13,591	9,045	22,636
February	617	228	845	....	....	....	....	....	....
March	70	147	217	....	....	....	11,870	5,550	17,420
April	768	218	986	....	....	....	19,774	8,413	28,187
May	249	723	972	....	....	....	....	....	....
June	298	738	1,036	123,908	45	123,953	34,163	10,293	44,456
July	18,440	52	18,492	369,449	....	369,449	43,822	2,322	46,144
August	....	35	35	173,502	....	173,502	71,606	113	71,719
September	7,690	83	7,773	149,318	1,644	150,962	2,612	368	2,980
October	566	1,046	1,612	214,453	7,914	222,367	12,286	5,794	18,080
November	575	161	736	139,989	5,071	145,060	8,167	10,459	18,626
Totals	$38,249	$6,744	$44,993	$1,363,659	$17,067	$1,380,726	$259,604	$55,807	$315,411

MERCHANDISE IMPORTED—CONCLUDED.

Month.	*Japan.*			*British India.*			*Grand Total.*		
	Free	Dutiable	Total	Free	Dutiable	Total	Free	Dutiable	Total
1894.									
December	$242,640	$92,978	$335,618	....	....	....	$423,970	$98,365	$522,335
1895.									
January	68,314	134,542	202,856	....	....	....	144,304	147,356	291,660
February	....	2,261	2,261	....	....	....	617	2,489	3,106
March	125,871	34,340	160,211	....	....	....	137,811	40,037	177,848
April	32,308	68,027	100,335	....	....	....	52,850	76,658	129,508
May	....	27,901	27,901	....	....	....	249	28,624	28,873
June	234,240	14,301	248,541	....	....	....	392,609	25,377	417,986
July	1,024,191	50,582	1,074,773	....	....	....	1,455,902	52,956	1,508,858
August	444,147	51,094	495,241	....	$245	$245	689,255	51,487	740,742
September	272,742	27,648	300,390	....	....	....	432,362	29,743	462,105
October	291,213	130,946	422,159	$618	....	618	519,136	145,700	664,836
November	139,955	113,489	253,444	....	....	....	288,686	129,180	417,866
Totals	$2,875,621	$748,109	$3,623,730	$618	$245	$863	$4,537,751	$827,972	$5,365,723

MERCHANDISE IN TRANSIT.

TABLE showing the amount of merchandise in transit through the Puget Sound customs district, from British Columbia, China, Japan and Hongkong, destined for England, Canada, British Columbia and Germany.

Month.	*British Columbia.*			*China.*			*Japan.*		
	Free........	Dutiable...	Total........	Free........	Dutiable...	Total........	Free........	Dutiable...	Total........
1894.									
December........	$132	$2,196	$2,328	....	....	....	$6,528	$175	$6,703
1895.									
January...........	290	5,394	5,684	$3,705	....	$3,705	3,232	895	4,147
February..........	....	4,071	4,071	....	....	....	....	....	....
March..............	55	3,450	3,505	....	....	....	....	1,053	1,033
April...............	162	7,651	7,813	....	....	....	1,250	1,410	2,660
May.................	18	4,042	4,060	....	....	....	....	800	800
June................	90	42,855	42,945	....	....	....	6,742	....	6,742
July.................	....	20,083	20,083	65,197	....	65,197	183,702	166	183,868
August.............	82	26,728	26,810	9,008	....	9,008	113,669	3,982	117,651
September........	21,715	38,186	59,901	9,747	....	9,747	63,130	81	63,211
October............	28,960	12,251	41,211	77,097	....	77,097	226,228	3,262	229,490
November........	417	11,256	11,673	44,939	....	44,939	49,100	3,315	52,415
Totals........	$51,021	$178,163	$230,081	$209,693	....	$209,693	$653,601	$15,139	$668,740

MERCHANDISE IN TRANSIT—CONTINUED.

Month.	*Hongkong.*			*England.*			*East Canada.*		
	Free........	Dutiable...	Total........	Free........	Dutiable...	Total........	Free........	Dutiable...	Total........
1894.									
December........	....	....	....	....	....	....	$6,528	$993	$7,521
1895.									
January...........	$5,647	....	$5,647	....	....	....	12,604	4,185	16,789
February..........	....	....	....	....	....	....	....	108	108
March..............	....	....	....	....	$60	$60	....	1,488	1,488
April...............	4,530	$350	4,880	....	....	....	5,780	4,138	9,918
May.................	....	....	....	....	41	41	....	915	915
June................	....	....	....	....	....	....	6,742	37,508	44,250
July.................	....	....	....	$79,102	12,419	91,521	169,797	3,905	173,702
August.............	....	....	....	....	23,841	23,841	122,677	4,007	126,684
September........	....	....	....	21,690	11,750	33,440	72,877	21,765	94,642
October............	....	....	....	29,120	2,450	31,570	303,165	11,972	315,137
November........	10,157	190	10,347	....	4,489	4,489	104,296	6,750	111,046
Totals........	$20,334	$540	$20,874	$129,912	$55,060	$184,962	$804,466	$97,734	$902,200

MERCHANDISE IN TRANSIT—CONCLUDED.

Month.	*British Columbia.*			*Germany.*		
	Free........	Dutiable...	Total........	Free........	Dutiable...	Total........
1894.						
December	$132	$1,378	$1,510	....	$192	$192
1895.						
January	290	1,912	2,202	....	....	....
February	....	3,963	3,963	....	....	....
March	55	2,955	3,010	....	....	....
April	162	5,255	5,417	....	18	18
May	18	3,886	3,904	....	....	....
June	90	5,347	5,437	....	....	....
July	....	3,925	3,925	....	....	....
August	82	2,862	2,944	....	....	....
September	25	4,737	4,762	....	15	15
October	....	1,091	1,091	....	....	....
November	200	3,442	3,642	$117	80	197
Totals	$1,054	$40,753	$41,807	$117	$305	$422

IMPORTS AND EXPORTS.

TABLE showing aggregate value of imports and exports through the Puget Sound customs district for 1893, 1894 and 1895.

Month.	*1893.*		*1894.*		*1895.*	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
1892.						
December	$51,610	$663,342	$75,117	$430,189	$124,843	$689,501
1893.						
January	40,989	611,219	81,383	437,978	591,843	396,422
February	54,628	493,422	83,741	647,569	43,945	399,130
March	65,756	488,375	96,508	455,075	162,988	601,831
April	47,827	262,627	106,057	358,088	167,891	348,593
May	80,324	220,098	126,912	306,918	137,927	394,921
June	70,028	258,096	146,346	195,846	181,922	481,206
July	76,882	137,836	29,649	273,478	284,989	334,160
August	132,803	188,565	90,560	383,560	548,891	467,832
September	96,795	423,425	78,428	284,850	476,743	292,440
October	54,086	532,918	385,319	874,629	1,461,490	585,759
November	154,514	734,622	225,897	599,108	496,735	584,105
Totals	$920,242	$5,014,545	$1,525,917	$5,247,288	$4,679,707	$5,575,900

FLOUR EXPORTS.

TABLE showing flour exports for 1893, 1894 and 1895.

Months.	*1893.*		*1894.*		*1895.*	
	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.
December, 1892	36,905	$130,649	13,301	$38,743	46,265	$108,602
January, 1893	6,123	21,556	9,934	24,076	50,742	116,269
February	20,557	68,486	75,249	189,603	40,322	93,448
March	8,245	27,067	805	2,080	25,097	57,165
April	1,939	6,245	27,896	69,096	44,554	101,787
May	7,704	25,661	24,415	60,666	15,016	34,097
June	12,010	38,971	17,009	43,238	23,205	59,828
July	2,665	7,032	20,546	51,259	24,691	61,651
August	9,529	30,051	10,498	22,469	31,641	84,935
September	11,531	36,880	25,671	63,671	20,976	53,793
October	41,648	126,412	31,228	75,496	49,956	119,866
November	42,962	126,001	39,355	85,624	21,798	53,685
Totals	201,818	$645,011	295,907	$726,021	394,263	$944,126
Countries.						
British Columbia	18,186	$56,202	29,343	$68,257	82,874	$200,005
Hongkong	139,411	454,151	196,113	487,846	161,190	384,565
Ireland	22,103	66,309	31,450	75,480	19,210	44,123
Japan	22,045	68,119	38,471	93,055	79,290	186,800
China	73	230	230	598	6,266	14,435
Hawaiian Islands			300	785	1,765	4,542
England					37,864	91,457
Salvador					3,803	11,703
British Africa					251	800
Guatemala					1,750	5,696
Totals	201,818	$645,011	295,907	$726,021	394,263	$944,126

WHEAT EXPORTS.

TABLE showing wheat exports for 1893, 1894 and 1895.

Months.	*1893.*		*1894.*		*1895.*	
	Bushels.	Value.	Bushels.	Value.	Bushels.	Value.
December, 1892	540,183	$394,340	448,853	$243,833	726,123	$317,754
January, 1893	697,172	497,530	584,640	303,555	312,502	142,065
February	470,057	332,646	675,810	364,090	382,150	173,366
March	436,691	300,551	693,348	354,004	594,189	277,454
April	190,152	136,622	340,516	160,079	13,184	5,794
May	262	192	108,052	54,965	338,545	177,040
June	136,550	80,000	9,315	3,824	205,862	115,160
July	668	455	7,179	2,765	11,374	5,922
August	328	237	134,115	66,133	126,743	63,311
September	281,807	161,032	19,678	7,190	10,521	4,746
October	337,021	195,656	634,487	266,268	184,416	117,697
November	711,653	394,211	634,001	262,517	634,129	319,557
Totals	3,802,544	$2,493,472	4,289,994	$2,089,223	3,539,738	$1,719,886
Countries.						
England	2,319,941	$1,566,489	838,837	$427,300	1,138,901	$556,405
Ireland	853,970	540,000	2,458,074	1,215,000	2,048,773	1,012,210
Belgium	199,635	121,000	537,711	258,740	125,968	56,520
France	418,125	260,000				
British Columbia	10,873	5,983	132,936	50,359	169,281	76,036
Japan			5,290	2,243	6,924	2,122
Germany			185,698	83,000		
Hawaiian Islands			333	125		
Chile			75	40		
Scotland			131,040	52,416		
Hongkong					49,891	16,593
Totals	3,802,544	$2,493,472	4,289,994	$2,069,223	3,539,738	$1,719,886

FOREIGN LUMBER SHIPMENTS.

TABLE showing foreign shipments of lumber for 1893, 1894 and 1895.

Months.	*1893.*		*1894.*		*1895.*	
	Feet.	Value.	Feet.	Value.	Feet.	Value.
December, 1892	7,854,000	$77,542	4,673,047	$38,909	8,899,000	$75,802
January, 1893	3,342,000	30,708	2,570,644	25,001	4,971,000	41,105
February	5,269,000	50,950	1,413,535	14,684	5,134,000	45,615
March	10,531,000	103,930	4,014,546	37,548	14,303,000	120,330
April	6,630,000	60,255	5,426,018	45,208	12,544,000	104,362
May	11,197,000	100,040	8,904,000	83,675	6,388,000	50,667
June	6,469,000	60,210	6,010,000	54,774	19,213,000	154,904
July	5,338,000	53,803	13,312,000	115,250	14,877,000	124,386
August	9,175,000	77,052	9,367,000	82,217	15,496,000	123,099
September	7,405,480	67,964	9,068,000	81,990	11,842,000	98,112
October	8,826,427	82,924	12,367,000	104,650	11,021,000	98,340
November	6,680,751	62,458	9,002,000	85,284	5,599,000	47,181
Totals	88,717,658	$827,836	86,147,790	$769,190	130,287,000	1,083,903
Countries.						
British Columbia	207,000	$3,998	425,000	$3,118	3,404,000	28,261
Mexico	8,546,000	80,320	4,943,000	48,475	2,914,000	26,873
Chile	19,170,000	180,728	16,038,000	130,835	27,091,000	219,381
China	5,010,000	44,933	4,367,000	36,838	9,081,000	76,338
Hongkong	1,212,000	11,806	644,000	8,457	771,000	10,564
Australia	15,024,000	122,950	26,535,790	232,269	37,452,000	295,231
Hawaiian Islands	10,968,000	104,942	11,175,000	99,730	14,828,000	131,317
British Africa	845,000	8,523	2,580,000	24,113	4,357,000	35,391
Netherlands			2,470,000	23,163	897,000	7,176
Japan	481,000	4,569	389,000	4,254	1,247,000	12,606
England	5,506,000	54,374			2,227,000	18,136
Guatemala	857,000	7,430	1,401,000	13,518	897,000	7,221
Portuguese Africa					17,683,000	149,274
Brit. Possessions A. O.	484,000	4,963	1,229,000	11,369		
Salvador					608,000	6,399
Peru	8,380,000	82,462	4,624,000	45,196	3,920,000	31,562
France	3,128,000	28,035				
Scotland					596,000	5,955
Belgium	579,000	5,789				
Asiatic Russia					600,000	5,028
Cape Colony	1,306,000	14,750	3,911,000	32,581		
Fiji Islands	1,915,000	19,548	1,201,000	12,537	1,233,000	11,748
Argentine Republic	973,000	8,375				
Tahiti					481,000	5,442
Ecuador	537,000	9,383				
Ireland	1,349,000	11,132	3,061,000	27,621		
British India	981,000	5,533				
Germany	1,005,000	10,049	1,154,000	15,116		
All other countries	254,000	3,244				
Totals	88,717,658	$827,836	86,147,790	$769,190	130,287,000	$1,083,903

NUMBER OF RAILROAD EMPLOYES.

TABLE showing number of employes employed by the various railroads in the State of Washington for the year ending June 30, 1895.

Class.	*No. of men.*	*Total days worked.*	*Total yearly compensation.*
General officers	11	3,326	$15,120 62
Other officers	21	8,772	67,425 66
General office clerks	13	5,348	10,350 88
Station agents	190	74,682	135,401 13
Other station men	270	99,990	193,688 53
Engineers	183	64,558	257,302 99
Firemen	194	64,744	145,164 62
Conductors	138	43,923	141,302 70
Other trainmen	273	86,951	178,135 07
Machinists	144	39,770	103,935 31
Carpenters	162	62,311	163,721 31
Other shopmen	502	146,674	315,344 77
Section foremen	292	99,690	181,886 00
Other trackmen	1,177	378,922	556,423 19
Switch, flag and watchmen	142	46,777	106,183 00
Telegraph operators and dispatchers	124	44,124	103,349 70
All other employes and laborers	627	189,479	424,652 86
Totals	4,466	1,460,041	$3,099,388 43
Distribution of above.			
General administration	161	54,748	$183,381 69
Maintenance of way and structures	1,828	599,255	1,026,850 19
Maintenance of equipment	763	228,091	500,073 91
Conducting transportation	1,714	577,947	1,389,082 64
Totals	4,466	1,460,041	$3,099,388 43

RESOURCES, MANUFACTURES, VALUATION,

BY COUNTIES.

ADAMS COUNTY.

Adams county was included in the territory of Whitman county until 1884, in which year it was divided by the territorial legislature.

The Northern Pacific Railroad, completed through the county in 1884, passes nearly diagonally from the northeast to the southwest corner. The Connell branch of the O. R. & N. R. R. passes through the southern part of the county. The greater portion of the population of Adams county was received during the years 1888, 1889 and 1890. Though there has been no great tide of immigration since that time, the growth has been steady and permanent.

The soil of Adams county is mostly a volcanic ash, very rich, and of varying depths, from one to two hundred feet. On the uplands, where the soil is deepest, it is practically inexhaustible, and is especially adapted to the production of all small grains and vegetables. Apples, pears, plums, prunes, apricots and berries thrive in all parts of the county. The southwestern part of the county is of a rather sandy soil, and produces corn of excellent quality. Five-sixths of the county is yet unimproved; but it is mostly occupied for grazing purposes. Good markets for farm products are found at Ritzville, Paha, Lind, Hatton and Wastucna; the first four places being on the line of the N. P. R. R., and the last on the O. R. & N. R. R.

A syndicate is now planning to irrigate a large part of the county by water taken from Colville lake, a large body of water lying in the northeast corner of the county, and other bodies of water connected therewith. As the land level is lower than the water level, and the surface is gently undulating, the scheme seems entirely practicable. A body of land twelve miles in width and over twenty-five miles long, situated in almost the center of the county, and called "The Flats," is well adapted to irrigation, and would in such case become the equal in production of any body of land of the same size in the county.

Ritzville is the county seat and largest town in the county. Population, 600. Population of the county, 3,500.

No. of acres land in county	1,220,000
No. of acres land taken up under various laws, including grants and reservations	891,581
No. of acres land remaining to be taken up under laws of the United States	328,419
No. of acres granted lands for sale by the State of Washington	92,124
No. of acres granted lands for sale by the Northern Pacific R. R. Co	430,977
No. of farms	930
No. of acres upland	1,000,000
No. of acres bottom land	25,000
No. of acres timber land	500
No. of acres prairie land	1,025,500
No. of acres under cultivation	80,700
No. of acres irrigated	900
No. of miles of irrigating ditches	10
No. of acres wheat	60,000
Average yield per acre	20 bush.
No. of acres oats	2,000
Average yield per acre	25 bush.
No. of acres barley	1,000
Average yield per acre	25 bush.
No. of acres corn	1,200
Average yield per acre	20 bush.
No. of acres potatoes	5,000
Average yield per acre	90 bush.
No. of acres fruit	1,500
No. of acres other products, rye and hay	10,000
No. of pounds of wool produced	4,000
No. of dairies	4
No. of cows furnishing milk therefor	60
Average price for dairy products per lb., butter	20c.
Amount of capital invested in dairies	$1,500
No. of males employed, farm work	200
Average number of hours employed per day	12
Average number of days employed per year	120
Average wages paid per month	$25
No. of males employed in manufacturing enterprises, skilled labor	5
Average number of hours employed per day	10
Average number of days employed per year	280
Average wages paid per day	$2 50
No. of males employed in manufacturing enterprises, common labor	30
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$35
No. of males employed, common labor, other than manufacturing	50
Average number of hours employed per day	10
Average number of days employed per year	180
Average wages paid per month	$25
No. of males employed in clerical positions	21
Average number of hours employed per day	14
Average number of days employed per year	300
Average wages paid per month	$30
No. of females employed as domestics	100
Average number of hours employed per day	14
Average number of days employed per year	365

Average wages paid per month	$12
No. of mechanics employed in building trades, stone cutters	20
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$45
No. of mechanics employed in building trades, brick masons	5
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$45
No. of mechanics employed in building trades, plasterers	10
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$35
No. of mechanics employed in building trades, carpenters	50
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$40
No. of flour mills in operation	1
Capital invested	$13,000
Daily capacity	100 bbls.
Output for year 1895	21,000 bbls.
Quantity product consumed in state	8,200 bbls.
Quantity product exported from state	12,800 bbls.

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	530	432	962
No. of children enrolled in public schools	434	340	774
Average daily attendance	293	252	545
No. of children over 6 years of age not enrolled in any school during year	27	31	58
No. of children between 8 and 15 years of age attending school less than three months during year	13	21	34
No. of teachers employed during year	15	29	44
No. of teachers employed in private schools during year	......	2	2

Average monthly salary paid male teacher during year	$47 96
Average monthly salary paid female teacher during year	$40 88
Estimated value of school houses, including grounds	$18,456 00
Estimated value of school furniture	$3,741 00
Estimated value of apparatus, including maps, charts, etc	$1,605 00
Estimated value of libraries	$375 00
Total value of all school property	$24,177 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$7,789 00
Amount of school district bonds outstanding at close of school year	$11,300 00
Average number of days school was maintained during year	107
No. of school districts in county	31
No. of graded schools in county	1
No. of private schools taught in county during year	2
No. of school houses built during year	3
No. of school houses now in county	29
Total seating capacity of all school houses in county	1,056
No. of districts in county not supplied with school houses	2

ASOTIN COUNTY.

Asotin county is one of the smallest counties in the state, having an area of 640 square miles. Snake river is its eastern boundary, while the Grand Ronde river cuts across its southeast corner. Asotin creek divides the county nearly in halves, having its source in the Blue mountains. It flows in a northeasterly direction, emptying into the Snake river near the northeast corner of Asotin City.

The general surface of the county is comparatively level, traversed by deep canons. In the southern portion is a spur of the Blue mountains, covered with dense forests of valuable timber.

The population of the county, according to census returns of 1890, was 1580, which remains about the same. Farming is carried on to a considerable extent, and is its chief industry. Along the creek and river bottoms, where a system of irrigation prevails, luxuriant gardens are raised. The fruit industry is only in its infancy, but in the production of apples, pears, peaches, apricots, cherries and all small fruits, it compares very favorably with any locality in the state. Stock raising has, as in all parts of Eastern Washington, been the "main spoke in the wheel" until recent years, and even now forms a great source of income to the farmers. Lumbering is not fully developed, owing to the fact of the sparsely settled condition of the county and lack of shipping facilities.

Wild game, such as bear, deer, cougar, geese, grouse, prairie chickens, etc., are in abundance, and fish abound in all the streams.

A company has recently been organized to tap Asotin creek several miles from its mouth and distribute its waters over what is known as "Lewiston Flat." They begin operations in the spring of 1896, and a most beautiful and valuable tract of land will thus be opened, comprising several thousand acres.

No railways have as yet penetrated the county; communication with the outside world being had by steamers plying on the Snake river between Asotin and Riparia, where connection is had with the O. R. & N. Ry. There are but two towns in the county at present. Asotin, the county seat, has a population of about 350 souls, and Anatone, a small village of about 40 souls. Much good land is awaiting the influence of the irrigation ditch to transform it into homes of value and comfort.

No. of acres land in county	404,500
No. of acres land taken up under various laws, including grants and reservations	149,425
No. of acres land remaining to be taken up under laws of the United States	255,075
No. of acres granted lands for sale by the State of Washington	21,286
No. of farms	525
No. of acres upland	216,000
No. of acres bottom land	2,500
No. of acres timber land	8,000
No. of acres prairie land	228,000
No. of acres under cultivation	28,980
No. of acres irrigated	500
No. of miles of irrigating ditches	15
No. of acres wheat	12,090
Average yield per acre	15 bush.
No. of acres oats	250
Average yield per acre	40 bush.
No. acres barley	3,987
Average yield per acre	30 bush.
No. of acres corn	200
Average yield per acre	20 bush.
No. of acres potatoes	175
Average yield per acre	100 bush.
No. of acres fruit	200
No. of acres other products	12,000
No. of pounds of wool produced	20,000
No. of dairies	17
No. of cows furnishing milk therefor	200
Average price for dairy products per lb.	butter, 20c; cheese, 15c.
Amount of capital invested in dairies	$2,500
No. of males employed, farm work	400
Average number of hours employed per day	12
Average number of days employed per year	208
Average wages paid per month	$25
No. of males employed in saw mills	15
Average number of hours employed per day	11
Average number of days employed per year	120
Average wages paid per month	$35
No. of males employed, common labor, other than manufacturing	10
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$40
No. of males employed in clerical positions	12
Average number of hours employed per day	15
Average number of days employed per year	250
Average wages paid per month	$40
No. of females employed as domestics	40
Average number of hours employed per day	12
Average number of days employed per year	250
Average wages paid per month	$15
No. mechanics employed in building trades, carpenters	10
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$60
No. of saw mills in operation	1
Daily capacity of same	15,000 ft.
Average actual daily output of same	12,000 ft.
Amount of capital invested therein	$5,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	359	394	753
No. of children enrolled in public schools	286	288	574
Average daily attendance	219	211	430
No. of children over 6 years of age not enrolled in any school during year	78	39	117
No. of children between 8 and 15 years of age attending school less than three months during year	26	32	58
No. of teachers employed during year	12	14	26
No. of teachers employed in private schools during year	......	2	2

Average monthly salary paid male teacher during year	$41 95
Average monthly salary paid female teacher during year	$38 00
Estimated value of school houses, including grounds	$7,850 00
Estimated value of school furniture	$1,695 00
Estimated value of apparatus, including maps, charts, etc	$850 00
Total value of all school property	$10,395 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$2,176 00
Amount of school district bonds outstanding at close of school year	$4,400 00
Average number of days school was maintained during year	73
No. of school districts in county	20
No. of graded schools in county	1
No. of private schools taught in county during year	2
No. of school houses built during year	1
No. of school houses now in county	18
Total seating capacity of all school houses in county	758
No. of districts in county not supplied with school houses	2

CHEHALIS COUNTY.

Chehalis county is situated in the southwestern part of the State of Washington, being bounded on the north by Jefferson county, on the east by Mason and Thurston counties, on the south by Lewis and Pacific counties, and on the west by the Pacific ocean.

The general topography of the county is rough, or rolling, being intersected and divided in countless places by rich and very fertile river valleys. The northern part of the county is somewhat mountainous, the southwestern end or spur of the Olympic mountains extending across it. The eastern part of the county is mainly made up of the Chehalis river valley, which attains a considerable width here. The same feature which seems to characterize all Pacific slope streams is true of the Chehalis and others of this county, namely, that the valleys near the source are considerably wider than when they approach the mouth. The Chehalis enters the county at the southeastern corner and extends in an easterly direction to the bay of Grays Harbor, a harbor of considerable extent and importance. In its course it, in connection with the bay, almost divides the southern half of the county into two equal parts. Together they form an outlet for nearly all the watershed of the Olympic peninsula and Southwestern Washington.

The western part of the county is quite different in general character from that of the eastern, the valleys being narrower and the country in general more broken and hilly. However, at the mouth of the different streams entering the bay of Grays Harbor and adjoining tide water, are large tracts of low, fertile tide prairies, many of which are free from timber. With the exception of these tide prairies and some isolated gravel and upland prairies, the land throughout the county was, in its natural state, a virgin forest. However, many thousand acres have, since the county has become settled, been cleared of the timber and transformed into as valuable agricultural land as any in the state. This is especially true of the eastern part of the county, which is settled chiefly by a farming community. The western part offers equal facilities to the settler, but has been somewhat slower in developing its agricultural resources, having until lately devoted all, or nearly all, its efforts to the manufacture of lumber.

The soil throughout the county is very fertile, excepting in places in the eastern part, where gravel abounds. This land, however, offers excellent facilities for pasture. The soil is of a rich alluvial composition, with an underlying stratum of clay. The valley lands are of known fertility, while the uplands, wherever they have been cleared of the standing timber, have proven equally so. The tide prairies, when diked, are the equal of any Holland diked lands.

No county in the state is so richly endowed with rivers as Chehalis. Besides the Chehalis river, already mentioned, there are, flowing from the north, where they have their source in the foothills of the Olympic mountains, and emptying into the bay of Grays Harbor and the said river, the following streams: Black, Satsop, Wynoochee, Wishka, Hoquiam and Humptulips. Entering the bay from the south, and having their headwaters in the low range of hills bordering on the southern part of the county, are the Elk, Johns and Newskah rivers. Flowing from the Olympic mountains in a westerly direction through the county into the Pacific ocean, are the Queets, Raft, Quinaiult, Chepalis and Moclips rivers. The North river, although flowing into Willapa Harbor, a bay south of Grays Harbor, has nearly all of its course confined to the limits of this county, and only as it nears its mouth does it leave this county and pass through a small strip of Pacific county. Hundreds of small creeks and sloughs form tributaries to these rivers and drain almost every square mile of territory in the county.

The only lake of any size in the county is Lake Quinaiult, located in the extreme northern part of it. It is nearly five miles in length and from one to two miles in width.

The Quinaiult Indian Reservation lies beween this lake and the Pacific ocean. The coast line, extending north of Grays Harbor, is generally very rugged and abrupt, forming a very interesting and picturesque work of nature. South of the harbor the beach is flat and broad, and is rapidly coming to the front as a resort for surf bathing and the like.

The climate of Chehalis county is similar to that of most of Western Washington, being very mild in winter and delightfully comfortable in summer.

The county has a great amount of standing timber. Like other counties, its principal woods are fir, spruce, cedar and hemlock. Fir is the predominating timber, while the supply of spruce, and especially cedar, is considered the largest and best in the state. Other woods, found in lesser quantities, are cottonwood, ash, maple, oak and a few other hard woods.

On account of the excellent water facilities and the absence of the toredo in the rivers and the bay, logging is both extensively and profitably carried on.

The soil of the county is capable of producing the most favorable results in nearly all branches of agriculture, excepting products requiring great heat to ripen. The cereals all do fairly well, especially oats, which yield prolifically. Hay is another product that yields enormous returns, while all the grasses grow luxuriantly. Fruit thrives well, both in the valley lands and on the uplands. Prunes, plums, apples, pears, cherries, quinces, and all other fruits not requiring extreme heat to ripen, are produced more or less. Some hops are raised in the eastern part of the county. Berries of nearly all kinds grow prolifically in a wild state and when cultivated. In the western part of the county, close to and parallel with the ocean beach, is a strip of land suitable for cranberry culture. These marshes or bogs are about ten miles in length and almost a mile across. This industry is just being developed. Root crops and vegetables do exceedingly well, and are considered by many superior to the average results in other places.

Chehalis county presents a most inviting field for the dairy business and the raising of stock. It is especially well adapted in this regard. The soil is rich, the winters mild, the summers moderate, the grasses nutritious and generally affording pasturage the year round. The economic advantages are apparent to all who have ventured into the business and to those who have investigated otherwise. The tide prairies adjacent to the bay and rivers will, if properly diked and drained, furnish thousands of acres of the best dairying and grazing lands under the sun. Even in their present state they are affording excellent pasturage for several thousand head of cattle. Wherever this land has been diked the results have been flattering. The county has many thousand acres of this valuable land, much of it entirely clear of timber. These lands can be bought at very reasonable prices, and in the hands of the energetic farmer, will prove in a few years to be one of the county's best factors of wealth.

The manufacture of lumber is at present the chief industry of the county. There are thirteen sawmills and seventeen shingle mills in the county. Also four sash and door factories, one machine shop and foundry, one basket factory, one pail and tub factory, one roller flouring mill, one salmon cannery, several box factories and other smaller industries.

The fishing industry is still in its very infancy, yet it already affords considerable employment and brings into the county a large revenue. Fresh salmon and sturgeon are shipped very extensively from the Grays Harbor towns to the eastern cities. Besides one cannery, which is operated part of the year, the catching of these fish for fresh shipment furnishes an occupation to several hundred men. Many other varieties of fish are caught in the bay of Grays Harbor and its tributary waters, among them being the smelt, herring, brook trout, salmon trout, pogies, etc. Immense halibut and cod banks are located about ten miles off the coast and opposite the harbor. Deep sea fishing is a promising future industry and will undoubtedly be pushed soon into the sphere it merits. Delicious clams of different varieties, crabs and other shell fish, are found in abundance in the harbor and adjoining streams.

There has been no development in minerals, although the natural lay of the country is such as to give foundation to the claim that coal, iron, copper, silver and gold abound more or less. An excellent clay is found at Ocosta and other points that can be used in the manufacture of tiles, brick, etc. Some very good sandstone is found near Aberdeen and Hoquiam.

The principal articles of commerce are lumber, shingles, lath, boxes, baskets, butter tubs and pails, hay, oats, butter, fruit, fresh and canned salmon, sturgeon and live stock.

A line of steamers operate between Grays Harbor towns and San Francisco. The Northern Pacific Railroad, which enters the county at the eastern line and extends entirely across it to Ocosta, the terminus on Grays Harbor, gives the best of facilities in the way of transportation and freight.

Montesano is the county seat, and has a population of about 1,500. The other towns in the county are Aberdeen, population, 2,200; Hoquiam, population, 1,400; Cosmopolis, 500; Elma, 500, and Ocosta, 250. Total population of county, about 12,000.

No. of acres land in county	1,258,500
No. of acres land taken up under various laws, including grants and reservations	900,000
No. of acres land remaining to be taken up under laws of the United States	358,500
No. of acres granted lands for sale by the State of Washington	83,649
No. of acres granted lands for sale by Northern Pacific R. R. Co	166,424
No. of farms	350
No. of acres upland	1,100,000
No. of acres bottom land	387,000
No. of acres timber land	1,230,000
No. of acres prairie land	10,000
No. of acres under cultivation	12,000
No. of acres wheat	675
Average yield per acre	35 bush.
No. of acres oats	1,150
Average yield per acre	60 bush.
No. of acres barley	210
Average yield per acre	55 bush.
No. of acres hops	40
Average yield per acre	1,250 lbs.
No. of acres potatoes	375
Average yield per acre	225 bush.
No. of acres fruit	190
No. of acres other products	9,400
No. of pounds of wool produced	12,000
No. of dairies	150
No. of cows furnishing milk therefor	6,100
Average price for dairy products per lb., butter	22c.
Amount of capital invested in dairies	$96,000
No. of males employed, farm work	350
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$45
No. of males employed in logging camps	1,200
Average number of hours employed per day	10
Average number of days employed per year	200

Average wages paid per month	$55
No. of males employed in saw mills	485
Average number of hours employed per day	10
Average number of days employed per year	290
Average wages paid per month	$45
No. of males employed in manufacturing enterprises, skilled labor	50
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$75
No. of males employed in manufacturing enterprises, common labor	100
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed, common labor, other than manufacturing	150
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$40
No. of males employed in clerical positions	100
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$60
No. of females employed in clerical positions	25
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$30
No. of females employed in manufacturing enterprises	20
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$35
No. of females employed as domestics	100
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$20
No. of mechanics employed in building trades, brick masons	10
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$80
No. mechanics employed in building trades, plasterers	10
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$80
No. mechanics employed in building trades, carpenters	50
Average number of hours employed per day	10
Average number of days employed per year	275
Average wages paid per month	$60
No. of saw mills in operation	7
Daily capacity of same	500,000 ft.
Average actual daily output of same	435,000 ft.
Amount of capital invested therein	$1,125,000
No. of shingle mills in operation	11
Daily capacity of same	1,000,000
Average daily output	500,000
Amount of capital invested	$50,000
No. of longshoremen	45
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$75
No. of tons of fresh fish shipped	765
Value of same	$92,000
No. of fishermen employed	200

No. of cargos of lumber shipped by water	218
No. of feet of lumber shipped by water	77,250,000
No. of feet of lumber shipped by rail	23,525,000
Value of all lumber shipped	$974,182
No. of shingles shipped	105,195,000
Value of same	$108,000
No. of canneries in operation	1
Amount of capital invested	$20,000
No. of cases of salmon packed	10,600
Value of same	$23,800
No. of sash and door factories in operation	4
Amount of capital invested	$25,000
Basket factory in operation	1
Amount of capital invested	$15,000
Value of output for 1895	$22,000
Pail and tub factory in operation	1
Amount of capital invested	$10,000
Flour mill in county	1
Daily capacity	100 bbls.
Amount of capital invested	$15,000
Foundry in county	1
Amount of capital invested	$20,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,634	1,568	3,202
No. of children enrolled in public schools	1,325	1,307	2,632
Average daily attendance	938	964	1,902
No. of children over 6 years of age not enrolled in any school during year	270	242	512
No. of children between 8 and 15 years of age attending school less than three months during year	97	85	182
No. of teachers employed during year	43	61	104
No. of teachers employed in private schools during year	......	8	8

Average monthly salary paid male teacher during year	$51 50
Average monthly salary paid female teacher during year	$43 19
Estimated value of school houses, including grounds	$116,525 00
Estimated value of school furniture	$11,589 00
Estimated value of apparatus, including maps, charts, etc	$3,927 00
Estimated value of libraries	$1,447 00
Total value of all school property	$133,488 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$24,898 00
Amount of school district bonds outstanding at close of school year	$81,650 00
Average number of days school was maintained during year	79
No. of school districts in county	60
No. of graded schools in county	6
No. of private schools taught in county during year	4
No. of school houses built during year	3
No. of school houses now in county	62
Total seating capacity of all school houses in county	3,944

CLALLAM COUNTY.

Clallam county is about 100 miles long from east to west, and averages about 22 miles deep from north to south. It is bounded on the north by the Strait of Juan de Fuca, a mighty arm of the

Pacific connecting the ocean with Puget Sound, and on the west by the Pacific ocean. The county contains a vast area of fine agricultural, fruit, grazing and timber lands.

The timber is mainly fir, cedar, spruce, hemlock and larch, with curly maple, cottonwood, alder, cherry and vine maple in the bottoms. There are very valuable tracts of Alaska cedar and white pine on the southern slope of the Olympics. The greater part of the land is heavily timbered, and the soil upon which these immensely valuable forests are standing is, as a rule, very rich, and suitable for agricultural purposes when cleared. About two-thirds of the county—the northern, northeastern, western and southwestern portions—are level or rolling. The southern portion of the county is traversed by the Olympic mountains, and this region is now attracting a great deal of attention by reason of the discoveries of gold, silver and copper that have recently been made there.

Preparations are being made by miners for a thorough prospecting of the Olympics during the coming season, and the work of developing promising quartz ledges already located will be vigorously prosecuted. It is confidently believed by those best acquainted with the Olympic country, that it will prove a rich producer of gold, silver and copper, and possibly cinnabar. Considerable cinnabar "float" has been found, and a vigorous search for deposits from which the float came will be made.

While the timber wealth of Clallam county is almost beyond computation, her area of farming lands now susceptible of cultivation is very large. It is noted for its fine farms, orchards, dairies and stock farms, and the excellence of its dairy product is well established.

All of the agricultural products and fruits common to the western part of the state flourish in Clallam county. It is famous for its enormous yields of potatoes, wheat, oats, hay, peas, apples, prunes, plums, cherries and all kinds of berries. Poultry and bees thrive and are becoming important money producers. There are many fine farms and orchards in the county, and the work of multiplying these is steadily going forward. Taking the county as a whole, it is now a heavy producer and shipper of many staple and valuable products.

To any one who has not seen it, the timber wealth of Clallam county will prove a revelation. The timber on 160 acres of land will run from 1,000,000 to 6,000,000 or 8,000,000 feet, and in some instances upwards of 15,000,000 feet. Trees from 250 to 350 feet high are common sights. A fir tree recently cut near Clallam Bay was 13 feet in diameter at the butt, and a 100-foot log cut therefrom, which was seven feet in diameter at the top, scaled 84,100 feet of lumber.

The county is traversed for almost one hundred miles, east and west, by a good county road, and a great many miles of branch roads, opening up a great scope of country, have been built. The work of road extension is constantly progressing, and good schools are to be found everywhere throughout the county.

Although the settlement and development of Clallam county has been rapid and is steadily progressing, there is still a large amount of desirable land open to settlement under the laws of the United States and for sale by the State of Washington and by private individuals.

There were ten logging camps in operation during the past year, and millions of feet of fine logs were marketed.

Great quantities of halibut are caught on the Flattery banks, just off the Clallam county coast, and shipped to eastern markets, and salmon fishing is extensively carried on at the mouths of Dungeness, Elwha, Lyre, Pysht, Clallam, Hoko, Seheon, Ozette and Quillayute rivers; in Port Angeles harbor and all along the straits. Food fishes of all kinds, including clams and crabs, are very abundant.

Port Angeles, the county seat of Clallam county, is located on the Strait of Fuca, on the first harbor in from the ocean—a harbor of matchless beauty and perfection, and large enough to accommodate and protect, at all times, a large fleet of the largest vessels afloat. The other towns in the county are Dungeness, Port Williams, Clallam, East Clallam, Seguin, Rena, Crescent, Gettysburg, Pysht, Sappho, Beaver, Forks, Quillayute, Boston and La Push. All of these towns are doing a thriving business, are surrounded and supported by fine agricultural country, and a great deal of produce of all kinds is being shipped from these ports.

Port Angeles enjoys the distinction of being a government townsite—a distinction shared but with a very few cities in the United States. It was laid out by President Lincoln in the year 1862, but the greater portion of the townsite remained locked up in the hands of the government until 1894, when title to all the lots included in the townsite reservation passed to the people. This long imprisonment naturally retarded the growth of the town, but now that all barriers to its development have been removed the advancement of Port Angeles to her proper place as one of the important seaport cities of the Pacific coast is rapid and substantial.

No. of acres land in county	1,161,240
No. of acres land taken up under various laws, including grants and reservations	382,415
No. of acres land remaining to be taken up under laws of the United States	778,825
No. of acres granted lands for sale by the State of Washington	83,592
No. of farms	1,250
No. of acres upland	58,000
No. of acres bottom land	90,000
No. of acres timber land	1,000,000
No. of acres prairie land	16,200
No. of acres coal land	2,000
No. of acres grazing land	40,000
No. of acres under cultivation	31,870
No. of acres wheat	3,000
Average yield per acre	49¼ bush.
No. of acres oats	2,000
Average yield per acre	60 bush.
No. of acres barley	500
Average yield per acre	45 bush.
No. of acres peas	2,000
Average yield per acre	50 bush.
No. of acres hops	190
Average yield per acre	1,995 lbs.
No. of acres sugar beets	5
Average yield per acre	40 tons.
No. of acres potatoes	5,000
Average yield per acre	300 bush.
No. of acres fruit	500
No. of acres other products	18,675
No. of pounds of wool produced	17,500
No. of dairies	93
No. of cows furnishing milk therefor	1,056
Average price for dairy products per lb	22c.
Amount of capital invested in dairies	$31,680
No. of males employed, farm work	360
Average number hours employed per day	10
Average number days employed per year	200
Average wages paid per month	$24
No. of males employed in general mining	60
Average number of hours employed per day	8
Average number of days employed per year	250
Average wages paid per day	$2 50
No. of males employed in logging camps	275
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$50
No. of males employed in saw mills	208
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$50
No. of males employed in manufacturing enterprises, skilled labor	119
Average number of hours employed per day	10
Average number of days employed per year	300

Average wages paid per month	$65
No. of males employed in manufacturing enterprises, common labor	347
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$38
No. of males employed, common labor, other than manufacturing	100
Average number of hours employed per day	8
Average number or days employed per year	250
Average wages paid per month	$33
No. of males employed in clerical positions	175
Average number of hours employed per day	8
Average number of days employed per year	300
Average wages paid per month	$50
No. of females employed in clerical positions	25
Average number of hours employed per day	8
Average number of days employed per year	300
Average wages paid per month	$30
No. of females employed as domestics	50
Average wages paid per month	$15
No. of mechanics employed in building trades, brick masons	10
Average number of hours employed per day	8
Average number of days employed per year	200
Average wages paid per month	$75
No. of mechanics employed in building trades, plasterers	10
Average number of hours employed per day	8
Average number of days employed per year	200
Average wages paid per month	$75
No. of mechanics employed in building trades, carpenters	123
Average number of hours employed per day	8
Average number of days employed per year	250
Average wages paid per month	$75
No. of saw mills in operation	6
Daily capacity of same	215,000 ft.
Average actual daily output of same	111,000 ft.
Amount of capital invested therein	$56,300
No. of shingle mills in operation	4
Daily capacity of same	250,000
Average daily output of same	250,000
Amount of capital invested	$20,000
No. of sash and door factories in operation	1
Daily capacity of same	25 doors, 150 sash.
Average daily output	25 doors, 150 sash.
Amount of capital invested	$3,000
No. of salmon canneries in operation	1
Daily capacity of same	salmon, 500 cases; clams, 50 cases.
Amount of capital invested	$30,000
No. of ship yards in operation	3
Amount of capital invested	$10,000
Amount of capital invested in bee culture	$4,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	815	704	1,519
No. of children enrolled in public schools	573	511	1,084
Average daily attendance	425	378	803
No. of children over 6 years of age not enrolled in any school during year	183	139	322
No. of children between 8 and 15 years attending school less than three months during year	92	59	151
No. of teachers employed during year	30	28	58
No. of teachers employed in private schools during year	2	4	6

Average monthly salary paid male teacher during year	$42 50
Average monthly salary paid female teacher during year	$40 90
Estimated value of school houses, including grounds	$34,472 00
Estimated value of school furniture	$5,940 00
Estimated value of apparatus, including maps, charts, etc	$1,611 00
Estimated value of libraries	$1,221 00
Total value of all school property	$43,244 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$14,997 00
Amount of school district bonds outstanding at close of school year	$34,300 00
Average number of days school was maintained during year	67
No. of school districts in county	37
No. of graded schools in county	4
No. of private schools taught in county during year	3
No. of school houses built during year	3
No. of school houses now in county	30
Total seating capacity of all school houses in county	1,619
No. of districts in county not supplied with school houses	11

CLARKE COUNTY.

In area Clarke county consists of about 16 townships, mostly rich alluvial bottom and bench lands adapted to the production of cereals, vegetables and fruits in great profusion.

Although the county is a small one, it has been repeatedly demonstrated that the soil is capable of sustaining an agricultural population of not less than 75,000. As this county is admirably situated for commercial transactions, and possesses as well many resources for manufacturing and mining, it will be appreciated that the county is destined to be one of the most important in the state in point of wealth, population and material industries.

A glance at the map of the state will show that it occupies a peculiar relation to the Columbia river, which is navigable for river steamers upon the entire west and south sides of the county, while the west boundary is traversed by the largest ocean ships and steamers. In addition to this the two forks of the Lewis river are traversed by river steamers, thus giving to the county not less than eighty miles of navigable waters. In addition to these streams numerous others are constantly used to convey timber from the vast forests along the eastern boundary down to market or mills, these forests being destined to afford material for one of the most important industries of the future.

While the soil of this county is admirably adapted to the production of cereals, of which it will return large yields, that industry is not much followed, as the raising of fruits and vegetables constitutes a more profitable pursuit, on account of the convenience of markets and the superior facilities for shipping. One not familiar with the conditions would consider fabulous any statement of facts concerning the yield per acre and the immense size of the vegetables produced along the Columbia bottoms, which, like the Nile, are annually overflowed. Nor are the more elevated bench lands much behind the river bottoms, inasmuch as they too were formed by wash from the Cascades.

But it is not for her large and numerous vegetables that Clarke county is chiefly noted, but for the immense quantities of magnificent Italian prunes annually produced. This county is the acknowledged home of this justly celebrated prune, which has already acquired a reputation extending to the large cities of the east, where numerous carloads are annually sold at remunerative prices. It is not many years since the first orchards of prunes were planted, and at present there are 4,000 acres of trees, one-fourth of which only are as yet in bearing. The output of these orchards the past year was over 100 carloads, the most of which were disposed of at prices ranging from 4½ to 6 cents per pound. To prepare these prunes for market requires not less than 40 evaporators, which are kept busy day and night for about six weeks each fall. This number will have to be materially increased from year to year, as the present acreage of prunes will within four years yield not less than 400 carloads of dried fruit.

A prune orchard comes into bearing in part at four years of age, and the following year it may be relied upon for a pretty fair crop. At eight years of age it is in its prime, and continues in fine condition for many years if well cared for. As yet no insect has appeared to injure trees or fruit, and on account of the peculiar qualities of the soil of this locality, eminently fitting it for the production of the Italian prune in its most perfect state, a brilliant future is confidently expected. As to the cost, it can only be said that bearing orchards are held at upwards of $500 per acre, though it will not cost that to grow them if one can take the time required and has money to live upon for a few years after buying the land. Parties can usually be found to sell prune orchards upon the installment plan.

Within the past few years parties have given considerable attention to the raising of apples for the market, and find that a superior fruit can be raised and placed on the market at paying figures.

Vancouver is the principal town, and the county seat. It has a population of over 5,000, and is beautifully situated in a healthful locality. Adjoining town is a military reservation, one of the most desirable in the United States, where are constantly kept about seven hundred troops, mostly infantry.

Several smaller towns and trading posts throughout the county afford opportunity for purchase of goods, and the receipt and despatch of mail.

Not much as yet has been done in the way of manufacturing, though quite a number of saw mills have been built. Owing to the dull times, the larger of these are now idle. At LaCamas is a large paper mill which turns out a superior quality of paper. Steady employment is given to about seventy hands in this one institution. Fine water powers in numerous localities, with raw material in abundance, will make this county a promising field for manufacturing when times improve.

The county lacks in railroad facilities, but is now moving with good prospects for success for a road leading across the Cascades to the wheat belts, where it will tap transcontinental lines and greatly shorten the distance from the east to the coast.

The homeseeker will find desirable locations in Clarke county where he can turn his attention to such pursuits as are best adapted to his taste or means, and feel reasonably sure, with application and economy, to succeed.

No. of acres land in county	402,160
No. of acres land taken up under various laws, including grants and reservations	297,019
No. of acres land remaining to be taken up under laws of the United States	105,151
No. of acres granted lands for sale by the State of Washington	23,027
No. of acres granted lands for sale by Northern Pacific R. R. Co.	39,924
No. of farms	1,915
No. of acres bottom land	16,785
No. of acres timber land	41,057
No. of acres under cultivation	28,205
No. of acres wheat	3,250
Average yield per acre	24 bush.
No. of acres oats	9,755
Average yield per acre	45 bush.
No. of acres hops	200
Average yield per acre	1,400 lbs.
No. of acres potatoes	700
Average yield per acre	150 bush.
No. of acres fruit	4,500
No. of acres other products	9,800
No. of pounds wool produced	7,325
No. of dairies and creameries	40
No. of cows furnishing milk therefor	1,300
Amount of capital invested in dairies and creameries	$60,000

No. of males employed, farm work	400
Average number of hours employed per day	10
Average number of days employed per year	270
Average wages paid per month	$18
No. of males employed in logging camps	145
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$30
No. of males employed in saw mills	140
Average number of hours employed per day	10
Average number of days employed per year	280
Average wages paid per month	$30
No. of males employed in manufacturing enterprises, skilled labor	58
Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$70
No. of males employed in manufacturing enterprises, common labor	50
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$40
No. of males employed, common labor, other than manufacturing	150
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$20
No. of males employed in clerical positions	70
Average number of hours employed per day	9
Average number of days employed per year	280
Average wages paid per month	$50
No. of females employed as domestics	120
Average number of hours employed per day	10
Average number of days employed per year	260
Average wages paid per month	$12
No. of mechanics employed in building trades, carpenters	10
Average number of hours employed per day	10
Average number of days employed per year	180
Average wages paid per month	$75
No. of saw mills in operation	10
Daily capacity of same	900,000 ft.
Amount of capital invested therein	$300,000
No. of shingle mills in operation	2
Daily capacity of same	50,000
Amount of capital invested	$5,000
Paper mill in operation	1
Daily capacity of same	10 tons.
Total output for 1895	3,650 tons.
Amount of capital invested	$150,000
Brewery in operation	1
Daily capacity of same beer, 40 bbls.; ice,	8 tons.
Total output for 1895 beer, 10,000 bbls.; ice,	1,000 tons.
Amount of capital invested	$60,000
Flour mill in operation	1
Daily capacity of same	10 bbls.
Amount of capital invested	$3,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	2,440	2,298	4,738
No. of children enrolled in public schools	1,796	1,598	3,394
Average daily attendance	1,222	1,075	2,297
No. of children over 6 years of age not enrolled in any school during year	578	583	1,161

No. of children between 8 and 15 years of age attending school less than three months during year	153	150	303
No. of teachers employed during year	46	52	98
No. of teachers employed in private schools during year	1	3	4

Average monthly salary paid male teacher during year	$36 50
Average monthly salary paid female teacher during year	$35 33
Estimated value of school houses, including grounds	$67,870 00
Estimated value of school furniture	$11,146 00
Estimated value of apparatus, including maps, charts, etc	$3,635 00
Estimated value of libraries	$730 00
Total value of all school property	$83,381 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$10,924 62
Amount of school district bonds outstanding at close of school year	$25,250 00
Average number of days school was maintained during year	104
No. of school districts in county	76
No. of graded schools in county	4
No. of private schools taught in county during year	2
No. of school houses built during year	6
No. of school houses now in county	77
Total seating capacity of all school houses in county	4,220
No. of districts in county not supplied with school houses	3

COLUMBIA COUNTY.

Columbia county, bounded on the north by Snake river, on the east by Garfield county, on the south by the State of Oregon, and west by the county of Walla Walla, of which county it was a part until 1875, has an area of about 830 square miles, or 553,000 acres. The county has a population of 7,000, and an assessed valuation of $3,400,000. The greater portion of this area is a rolling plain, with deep rich soil derived from disintegration of volcanic rocks.

It is one of the best grain producing counties in the state. The acreage of spring and fall wheat is about equal. The quality of grain is about the same. Spring sowing yields from 15 to 30 bushels per acre, and winter wheat from 25 to 50 bushels per acre. The county is best known for its production of wheat, but other crops, such as oats, barley, corn, flax, sorghum and potatoes do equally well, and all are grown without resorting to irrigation. The soil is remarkably fertile; many pieces of land have yielded crops for twenty, thirty and even more years in succession, and today no decrease in productiveness is noticeable.

Fruit also is grown in abundance, and of a superior quality. The income from shipments of apples, plums, peaches, apricots, cherries, pears, prunes and the smaller fruits proves a source of considerable profit. Most of the orchards are young and in a thrifty condition. The fruit of this section is well known for its excellent quality in all markets where it has been introduced, and the demand in a short time promises to be far beyond the supply. The fruit industry of the county, however, is constantly growing. New orchards are being added to the already large acreage, and the county promises soon to excel in quantity, as it does now in the quality, of its fruit.

The climate of Columbia county is quite equable and very healthful. The records of the United States weather bureau, which was maintained at Dayton for six years, shows the mean annual temperature to be 49 degrees above zero. The annual rainfall is 26.30 inches. The extremes of temperature are not disagreeable; the warmth of summer is tempered by refreshing breezes, and the nights are always cool. The winters are short and usually very mild; mercury seldom reaches the zero point, and then only for a few days.

In the past the most important industry in the county has been grain growing; but with the continuing low price of grain, and the demand of the markets for a more varied product, producers are turning their attention to stock raising, fruit growing, etc., and with good results.

The city of Dayton is the county seat. It is situated on the Touchet river, and has a population of about 2,500.

The two competing lines of railroad—the O. R. & N. and the W. & C. R.—afford shipping facilities not enjoyed by many counties of greater pretensions.

Of the other towns of the county which handle a very considerable portion of its products, Starbuck, at which place the O. R. & N. car and repair shops are located; Huntsville, Covello, Alto and Long's Station are among the more important, and together import and export about one-third of the county's traffic.

Columbia county's rich farm and pasture lands; its vast forests of fir, pine and tamarack timber; its splendid water and healthful climate; its varied and abundant products; its many churches and well organized public schools, combine in offering special inducements to homeseekers.

No. of acres land in county	553,000
No. of acres land taken up under various laws, including grants and reservations	360,637
No. of acres land remaining to be taken up under laws of the United States	192,363

No. of acres granted lands for sale by the State of Washington	31,960
No. of acres granted lands for sale by Northern Pacific R. R. Co	45,631
No. of farms	840
No. of acres upland	137,335
No. of acres bottom land	5,000
No. of acres timber land	25,000
No. of acres under cultivation	134,460
No. of acres wheat	26,890
Average yield per acre	19 bush.
No. of acres oats	7,840
Average yield per acre	38 bush.
No. of acres barley	24,790
Average yield per acre	35 bush.
No. of acres corn	10,237
Average yield per acre	15 bush.
No. of acres potatoes	1,875
Average yield per acre	125 bush.
No. of acres fruit	400
No. acres other products	62,428
No. of pounds of wool produced	80,790
No. of males employed, farm work	628
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$22
No. of males employed in logging camps	40
Average number of hours employed per day	10
Average number of days employed per year	138
Average wages paid per month	$30
No. of males employed in saw mills	10
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$32
No. of males employed in manufacturing enterprises, skilled labor	35
Average number of hours employed per day	9
Average number of days employed per year	300
Average wages paid per month	$78
No. of males employed in manufacturing enterprises, common labor	18
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$46
No. of males employed, common labor, other than manufacturing	150
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$36
No. of males employed in clerical positions	87
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$55
No. of females employed in clerical positions	10
Average number of hours employed per day	8
Average number of days employed per year	300
Average wages paid per month	$35
No. of females employed as domestics	127
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$12
No. of mechanics employed in building trades, carpenters	27
Average number of hours employed per day	10
Average number of days employed per year	110
Average wages paid per day	$2 50

No. of saw mills in operation	2
Daily capacity of same	10,000 ft.
Average actual daily output of same	6,000 ft.
Amount of capital invested therein	$16,000
No. of flour mills in operation	2
Daily capacity of same	400 bbls.
Total output for 1895	72,000 bbls.
Amount of capital invested	$85,000
Quantity of product consumed in state	15,000 bbls.
Quantity of product exported from state	57,000 bbls.
No. of breweries in operation	1
Daily capacity of same	10 bbls.
Total output for 1895	300 bbls.
Amount of capital invested	$10,000
No. of malt houses in operation	1
Daily capacity of same	120 bush.
Total output for 1895	18,000 bush.
Amount of capital invested	$12,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,244	1,287	2,531
No. of children enrolled in public schools	1,004	1,069	2,073
Average daily attendance	666	726	1,392
No. of children over 6 years of age not enrolled in any school during year	151	177	328
No. of children between 8 and 15 years of age attending school less than three months during year	89	69	158
No. of teachers employed during year	37	40	77
No. of teachers employed in private schools during year	1	3	4

Average monthly salary paid male teacher during year	$43 24
Average monthly salary paid female teacher during year	$39 52
Estimated value of school houses, including grounds	$65,330 00
Estimated value of school furniture	$8,020 00
Estimated value of apparatus, including maps, charts, etc	$3,325 00
Estimated value of libraries	$243 00
Total value of all school property	$76,918 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$19,387 64
Amount of school district bonds outstanding at close of school year	$4,200 00
Average number of days school was maintained during year	91
No. of school districts in county	48
No. of graded schools in county	3
No. of private schools taught in county during year	4
No. of school houses built during year	2
No. of school houses now in county	50
Total seating capacity of all school houses in county	2,748
No. of districts in county not supplied with school houses	1

COWLITZ COUNTY.

Cowlitz county is bounded on the north by Lewis county, on the south by Clarke county and the Columbia river, on the east by Skamania county, and on the west by Wahkiakum county. Kalama is the county seat and is prominently situated on the Columbia river, about forty miles north of Portland, Oregon, with which place it has connection by the Northern Pacific Railroad and by steamers plying the Columbia river. The other prominent towns in the county are Castle Rock, Kelso and Woodland.

The county is principally mountainous, interspersed with valleys, prominent among which are the valleys of the Cowlitz, Lewis, Foulte, Coweeman and Kalama rivers. Large areas of rich bottom land abound along the Columbia river in this county, as well as in the valleys above mentioned, all of which are a rich alluvial soil, admirably adapted to the raising of grass, grain, all kinds of vegetables and fruit.

There are many fine orchards in the valleys of the Cowlitz and Lewis rivers, the fruit raised being principally apples, pears, cherries and prunes. There are no extensive orchards of prunes as yet, though many of the farmers are now turning their attention to this industry, and large areas are being set out in prune trees, which in a few years will be in bearing and yield large returns to the owners. The yield of apples, pears, cherries and prunes is large and the fruit perfect.

Large quantities of coal are known to exist in Cowlitz county, and much development work has been done near the towns of Castle Rock and Kelso. Litigation, however, has retarded the work and delayed the development of these properties. The character of the coal found is principally bituminous. Gold, silver and copper has also been found and some development work done. The ore is a low grade quartz.

Logging is carried on extensively in many parts of the county, notably on the Cowlitz river, Ostrander creek and Coal creek.

No. of acres land in county	736,420
No. of acres land taken up under various laws, including grants and reservations	460,945
No. of acres land remaining to be taken up under laws of the United States	275,475
No. of acres granted lands for sale by the State of Washington	57,875
No. of acres granted lands for sale by Northern Pacific R. R. Co	126,007
No. of farms	526
No. of acres upland	212,100
No. of acres bottom land	110,000
No. of acres timber land	521,000
No. of acres prairie land	4,300
No. of acres coal land	1,280
No. of acres under cultivation	10,480
No. of acres wheat	380
Average yield per acre	25 bush.
No. of acres oats	1,420
Average yield per acre	50 bush.
No. of acres barley	73

Average yield per acre	35 bush.
No. of acres hops	126
Average yield per acre	700 lbs.
No. of acres potatoes	1,564
Average yield per acre	200 bush.
No. of acres fruit	1,840
No. of acres other products	5,000
No. of dairies	2
No. of cows furnishing milk therefor	384
Average price for dairy products per lb., butter and cheese	15c.
Amount of capital invested in dairies	$2,100
No. of males employed, farm work	300
Average number of hours employed per day	14
Average number of days employed per year	250
Average wages paid per month	$30
No. of males employed in coal mining	35
Average number of hours employed per day	10
Average number of days employed per year	75
Average wages paid per month	$35
No. of males employed in logging camps	250
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$45
No. of males employed in saw mills	184
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$35
No. of males employed in manufacturing enterprises, skilled labor	62
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$45
No. of males employed, common labor, other than manufacturing	416
Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$22
No. of males employed in clerical positions	16
Average number of hours employed per day	10
Average number of days employed per year	185
Average wages paid per month	$40
No. of females employed as domestics	97
Average number of hours employed per day	12
Average number of days employed per year	275
Average wages paid per month	$10
No. of mechanics employed in building trades, carpenters	20
Average number of hours employed per day	10
Average number of days employed per year	90
Average wages paid per month	$65
No. of saw mills in operation	8
Daily capacity of same	110,000 ft.
Average actual daily output of same	80,000 ft.
Amount of capital invested therein	$25,500
No. of shingle mills in operation	8
Daily capacity of same	800,000
Average daily output of same	425,000
Amount of capital invested	$40,000
No. of pounds fresh fish shipped	1,850,000
Shipped as follows: *400,000 lbs. to European markets, frozen; 100,000 lbs. to* European markets, pickled; 1,350,000 lbs. to eastern markets.	
Value of same	$58,000
No. of fishermen employed	500

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,294	1,326	2,620
No. of children enrolled in public schools	969	998	1,967
Average daily attendance	706	732	1,438
No. of children over 6 years of age not enrolled in any school during year	200	218	418
No. of children between 8 and 15 years of age attending school less than three months during year	143	161	304
No. of teachers employed during year	31	49	80
No. of teachers employed in private schools during year	2	2	4

Average monthly salary paid male teacher during year	$46 40
Average monthly salary paid female teacher during year	$40 25
Estimated value of school houses, including grounds	$28,335 00
Estimated value of school furniture	$6,332 00
Estimated value of apparatus, including maps, charts, etc	$2,768 00
Estimated value of libraries	$100 00
Total value of all school property	$37,535 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$6,879 00
Amount of school district bonds outstanding at close of school year	$10,800 00
Average number of days school was maintained during year	77
No. of school districts in county	57
No. of graded schools in county	4
No. of private schools taught in county during year	4
No. of school houses built during year	3
No. of school houses now in county	55
Total seating capacity of all school houses in county	2,544
No. of districts in county not supplied with school houses	4

DOUGLAS COUNTY.

Douglas county, from an agricultural point of view, presents two widely differing aspects. The upland prairie is well adapted by nature for the production of all the cereals, vegetables and hardy fruits of the temperate zone, without irrigation. The river benches below, with irrigation, have proven by experience to be remarkably productive of high grade fruit, ranging in variety from the hardy red apple to the luscious peach and the tender grape.

The difference in climate necessary for so wide a range of production is the result of the difference in altitude. In the Columbia canyon the summer climate is almost semi-tropical. On the uplands it is temperate, with the pure, fresh air of the mountains beyond, and the cool nights so invigorating to all human life.

The surface of the county is not one unbroken, monotonous prairie. Along the eastern border it is comparatively level and almost entirely occupied by farms. Grand and Moses coulees, about ten miles apart, are two gigantic fissures running north to south many miles, opening out at last upon the flat lands in the south part of the county, at present used exclusively for stock range.

The western and northern parts of the county embrace a high plateau, with the wooded Badger mountain bisecting it from west to southeast. The land is rolling and in places rugged, but by far the greater portion of it is susceptible to cultivation.

On the upland the staple crops are wheat, oats, barley, rye, corn, peas, beans, potatoes and the scores of kindred vegetables. Experiments with sugar beets have yielded gratifying results. Many of the young orchards are coming into bearing. The wheat yield runs from 15 to 35 bushels per acre; the average for a series of years being 22 bushels. Other grain and vegetables yield in like proportions. Stock raising and dairying is also receiving considerable attention.

Agriculture is the mainstay of the county and the basis of its prosperity. Wheat has been one of the principal crops, because it is one of the easiest to raise. Both spring and winter wheat are grown. Oats and barley, particularly the former, are grown extensively. It is sufficient to say that the yield per acre, the quality of the grain and the certainty of the crops are quite as satisfactory as in the case of wheat.

Of all the forces awakened by the increasing tendency of the farmer to diversify his productions none promise to lead to more important or more profitable results than the fruit raising industry. On the benches of the Columbia river is found the home of the peach and the grape. Apples, pears, peaches, plums, apricots and many other kinds of fruit of every variety grow in the greatest profusion and of most excellent quality. Peach trees bear at three years of age, apple trees at four, and other fruits in like manner, and it needs only intelligence, energy and a moderate amount of capital to convert the valley of the Columbia into one continuous fruit orchard. These bar lands, lying at a much lower altitude than the adjoining plateau, have a milder climate, and with the addition of water for irrigation purposes the products partake of an almost semi-tropical nature.

At present the products of the county are marketed *via* the Great Northern Railroad, which is reached by steamers plying on the Columbia river.

The population of the county is estimated at about 4,500. Waterville is the county seat.

No. of acres land in county	2,899,860
No. of acres land taken up under various laws, including grants and reservations	1,475,092
No. of acres land remaining to be taken up under laws of the United States	1,424,768
No. of acres granted lands for sale by the State of Washington	281,970
No. of acres granted lands for sale by Northern Pacific R. R. Co	554,102
No. of farms	1,500
No. of acres upland	2,500,000
No. of acres bottom land	100,000
No. of acres timber land	35,000
No. of acres prairie land	2,450,000
No. of acres under cultivation	160,000
No. of acres irrigated	4,700
No. of miles of irrigating ditches	60
No. of acres wheat	40,000
Average yield per acre	18 bush.
No. of acres oats	35,000
Average yield per acre	28 bush.
No. of acres barley	5,000
Average yield per acre	30 bush.
No. of acres potatoes	1,000
Average yield per acre	175 bush.
No. of acres fruit	4,000
No. of acres other products	75,000
No. of pounds of wool produced	31,500
No. of dairies	6
No. of cows furnishing milk therefor	120
Average price for dairy products per lb., butter	20c.
Amount of capital invested in dairies	$6,000
No. of males employed, farm work	800
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$20
No. of males employed in saw mills	25
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$30
No. of males employed in manufacturing enterprises, skilled labor	28
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$60
No. of males employed in manufacturing enterprises, common labor	25
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$30
No. of males employed in clerical positions	50
Average number of hours employed per day	12
Average number of days employed per year	313
Average wages paid per month	$50
No. of mechanics employed in building trades, stone cutters	5
Average number of hours employed per day	10
Average number of days employed per year	50
Average wages paid per month	$75
No. of mechanics employed in building trades, brick masons	5
Average number of hours employed per day	10
Average number of days employed per year	50
Average wages paid per month	$75
No. of mechanics employed in building trades, plasterers	5
Average number of hours employed per day	10
Average number of days employed per year	50

Average wages paid per month	$60
No. of mechanics employed in building trades, carpenters	25
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$50
No. of saw mills in operation	5
Daily capacity of same	50,000 ft.
Average actual daily output of same	30,000 ft.
Amount of capital invested therein	$20,000
No. of flour mills in operation	2
Daily capacity of same	125 bbls.
Average daily output	80 bbls.
Amount of capital invested	$17,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	643	629	1,272
No. of children enrolled in public schools	508	510	1,018
Average daily attendance	348	360	708
No. of children over 6 years of age not enrolled in any school during year	112	97	209
No. of children between 8 and 15 years of age attending school less than three months during year	61	68	129
No. of teachers employed during year	29	32	61
No. of teachers employed in private schools during year	......	2	2

Average monthly salary paid male teacher during year	$45
Average monthly salary paid female teacher during year	$44
Estimated value of school houses, including grounds	$32,675
Estimated value of school furniture	$4,942
Estimated value of apparatus, including maps, charts, etc	$1,556
Estimated value of libraries	$255
Total value of all school property	$39,428
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$5,229
Amount of school district bonds outstanding at close of school year	$23,450
Average number of days school was maintained during year	87
No. of school districts in county	43
No. of graded schools in county	1
No. of private schools taught in county during year	2
No. of school houses built during year	5
No. of school houses now in county	37
Total seating capacity of all school houses in county	1,776
No. of districts in county not supplied with school houses	6

FRANKLIN COUNTY.

Franklin county comprises the most southerly portion of th great Columbia plain at the junction of the Snake and Columbi rivers. It is of nearly a triangular form, bounded partly on th west and partly on the south by the Columbia river, partly on th south and southeast by the Snake river, on the east by the Palous river, on the north by Adams and Douglas counties, and partly o the west by Douglas county.

The land is composed of a volcanic sedimentary deposit, covered with sage brush and bunch grass, and forms part of the great stock range of the Snake and Columbia rivers.

The lower or southern portion of the county is composed of a light-colored soil of a sandy nature, and when irrigated, settles down into a dark, heavy loam, showing great richness in the production of fruits and vegetables. By experiment in the past, this soil has proved to be preëminently suited to raise very large crops of fruit and vegetables of large size and very superior quality. Apples, pears, peaches, prunes, plums, cherries and apricots all grow very fine and come into bearing very early, as well as all the small fruits. It is not uncommon to see peach trees make a growth from 8 to 12 feet in one year.

At least 150,000 acres at the junction of the Snake and Columbia rivers can be irrigated at a moderate cost by pumping the water from these rivers by water power. Several ditches are now under construction, by private individuals, to irrigate several hundred acres, which land can be bought at a reasonable price and on easy terms.

The northern portion of the county is better adapted to raising grain, being a heavier and darker-colored soil than in the southern part. The water in the Palouse river is of such an elevation that a gravity system of irrigation can be built by impounding the water. A ditch nine miles long has already been constructed. There are lakes and streams of sufficient volume and elevation, in the adjoining counties north and east of Franklin county, that can be conducted by a gravity system, to irrigate a very large portion of this county. Surveys have already been made tending to this end and will, no doubt, be carried to a successful termination.

Nearly one-half the land in this county is subject to entry under the laws of the United States, and the remainder for sale at reasonable rates and on easy terms.

Pasco is the county seat and junction of the Northern Pacific Railroad main line with branch extending south.

No. of acres land in county	785,500
No. of acres land taken up under various laws, including grants and reservations	482,035
No. of acres land remaining to be taken up under laws of the United States	303,465
No. of acres granted lands for sale by the State of Washington	40,920
No. of acres granted lands for sale by Northern Pacific R. R. Co	335,069
No. of farms	90
No. of acres upland	690,000
No. of acres bottom land	1,200

No. of acres prairie land	691,200
No. of acres under cultivation	479
No. of acres irrigated	20
No. of acres wheat, cut for hay	200
No. of acres corn, cut for fodder	10
No. of dairies	1
No. of cows furnishing milk therefor	9
Average price for dairy products per lb., butter and cheese	25c.
Amount of capital invested in dairies	$500
No. of males employed, farm work	20
Average number of hours employed per day	10
Average number of days employed per year	90
Average wages paid per month	$20
No. of males employed in clerical positions	6
Average number of hours employed per day	10
Average number of days employed per year	310
Average wages paid per month	$50

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	75	62	134
No. of children enrolled in public schools	52	42	94
Average daily attendance	31	26	57
No. of children over 6 years of age not enrolled in any school during year	7	16	23
No. of children between 8 and 15 years of age attending school less than three months during year	2	2	4
No. of teachers employed during year	2	5	7

Average monthly salary paid male teacher during year	$72 00
Average monthly salary paid female teacher during year	$45 65
Estimated value of school houses, including grounds	$2,900 00
Estimated value of school furniture	$205 00
Estimated value of apparatus, including maps, charts, etc	$145 00
Estimated value of libraries	$155 00
Total value of all school property	$3,405 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$400 35
Average number of days school was maintained during year	116
No. of school districts in county	4
No. of graded schools in county	4
No. of private schools taught in county during year	1
No. of school houses built during year	None.
No. of school houses now in county	4
Total seating capacity of all school houses in county	100
No. of districts in county not supplied with school houses	1

GARFIELD COUNTY.

Garfield county was formed by an act of the territorial legislature of 1881 by dividing Columbia county, but did not assume the boundaries that it now holds until the year 1883, when the territorial legislature divided Garfield county and made the county of Asotin on the east. Garfield county, as it now is, lies south of the Snake river, and is bounded on the north by that river, on the east by Asotin county, on the south by the State of Oregon, and on the west by Columbia county. Its area amounts to nineteen full townships, and is forty-eight miles across from north to south at its greatest extremity, and thirty miles at its greatest extremity from east to west. It is a table land rising about 1,000 feet above the low-water mark of Snake river, and ascending gradually southward until it ends in the Blue mountains, in the southern part of the county. While the land is a high table land, it is rolling, with gulches here and there descending from the table lands into the various streams of water that flow usually southwestward into the Snake river or into adjoining streams. The population of the county is about 6,000.

The lands of the county are mostly prairie until the foothills of the Blue mountains are reached. Here is found pine, spruce, fir, and hemlock timber in abundance, which makes fair building material; in fact, the most of the lumber used in the county is manufactured from the timber grown on the Blue mountains.

All vegetables grow luxuriantly. Almost every quarter section of land has some part of it where an orchard can be planted and grow such fruit as peaches, pears, plums, apricots and prunes. Its lands are equal in value for raising grain, vegetables and fruits to that of any other part of the state; good lands reasonably well improved can be had in this county for from $10 to $15 per acre.

No irrigation is needed in this county, and none is used, except along the Snake river and other streams, where farming the sandbars along said streams is conducted. Plowing is often carried on during every month in the winter, and horses and cattle graze upon the range the entire winter without any other feed than that they are able to gather for themselves on the ranges. Cattle, sheep and horses have been largely raised in this county, but owing to the low prices of horses this branch of industry will soon be a thing of the past. During the last two years the farmers have commenced to raise hogs largely, and no such thing as pork is shipped into this country. Wheat, oats and barley produce largely, and on summer fallowed land wheat often yields as high as 50 bushels to the acre, oats 100 bushels and barley from 50 to 80 bushels. Rye yields from 15 to 20 bushels to the acre and need not be sown oftener than once in three years, as it will volunteer and raise often a better crop the second and third years than it does the first.

Pomeroy is the county seat, and is the terminus of a branch line of the O. R. & N. Railway, which leaves the main line at Starbuck, about 28 miles from Pomeroy. It has a population of about 1,000.

No. of acres land in county	452,500
No. of acres land taken up under various laws, including grants and reservations	320,517
No. of acres land remaining to be taken up under laws of the United States	131,983
No. of acres granted lands for sale by the State of Washington	18,817
No. of acres granted lands for sale by Northern Pacific R. R. Co	29,053
No. of farms	1,030
No. of acres upland	200,000
No. of acres bottom land	10,000
No. of acres timber land	71,680
No. of acres prairie land	200,000
No. of acres under cultivation	180,000
No. of acres wheat	70,680
Average yield per acre	21 bush.
No. of acres oats	200
Average yield per acre	40 bush.
No. of acres barley	23,561
Average yield per acre	35 bush.
No. of acres potatoes	310
Average yield per acre	200 bush.
No. of acres other products	35,250
No. of pounds of wool produced	86,000
No. of males employed, farm work	340
Average number of hours employed per day	12
Average number of days employed per year	200
Average wages paid per month	$25
No. of males employed in logging camps	20
Average number of hours employed per day	10
Average number of days employed per year	60
Average wages paid per month	$30
No. of males employed in saw mills	40
Average number of hours employed per day	11
Average number of days employed per year	60
Average wages paid per month	$30
No. of males employed in clerical positions	20
Average number of hours employed per day	10
Average number of days employed per year	310
Average wages paid per month	$40
No. of females employed in clerical positions	5
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$30
No. of females employed as domestics	60
Average number of hours employed per day	12
Average number of days employed per year	200
Average wages paid per month	$12
No. of mechanics employed in building trades, carpenters	14
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$75
No. of saw mills in operation	4
Daily capacity of same	45,000 ft.
Average actual daily output of same	26,000 ft.
Amount of capital invested therein	$35,000
No. of flour mills in operation	2
Daily capacity of same	175 bbls.
Average daily output	100 bbls.

Output for year 1895	30,000 bbls.
Quantity of product consumed in state	7,500 bbls.
Quantity of product exported from state	22,500 bbls.

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	850	741	1,591
No. of children enrolled in public schools	730	657	1,387
Average daily attendance	310	284	594
No. of children over 6 years of age not enrolled in any school during year	117	120	237
No. of children between 8 and 15 years of age attending school less than three months during year	49	46	95
No. of teachers employed during year	27	24	51

Average monthly salary paid male teacher during year	$47 58
Average monthly salary paid female teacher during year	$39 00
Estimated value of school houses, including grounds	$31,350 00
Estimated value of school furniture	$16,185 00
Estimated value of apparatus, including maps, charts, etc	$2,216 00
Estimated value of libraries	$175 00
Total value of all school property	$49,926 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$13,118 76
Amount of school district bonds outstanding at close of school year	$19,000 00
Average number of days school was maintained during year	94
No. of school districts in county	36
No. of graded schools in county	2
No. of private schools taught in county during year	None.
No. of school houses built during year	None.
No. of school houses now in county	35
Total seating capacity of all school houses in county	2,032
No. of districts in county not supplied with school houses	1

ISLAND COUNTY.

Island county, as may be inferred from its name, is one of the two counties in the state composed entirely of the islands of Puget Sound, formed by Whidby island, the largest of these, with an area of about 115,000 acres, and Camano island, containing about 30,000 acres. Whidby island lies across the head of the Strait of Juan de Fuca, extending north and south a distance of about 40 miles, varying in width from one to ten miles. It forms the division between the two principal channels of the upper sound—Admiralty inlet on the west and Saratoga passage on the east. Camano island is about twelve miles in length, lying east of the central portion of Whidby island and parallel to it, tapering to a point from an extreme width of about six miles at its northern end.

With a considerable area of fertile prairie lands easily prepared for cultivation, Whidby island naturally became one of the earliest settled and productive agricultural regions of Western Washington, having been from the earliest pioneer times a heavy contributor to the food supply of the mill ports, logging camps and young cities on the Sound. The soil of its fertile prairie, marsh and alder bottom lands produces the great yields of vegetable and cereal crops for which Western Washington is famous. The timbered uplands are as a rule less fertile, but excellently adapted for fruit. With a surface level or gently rolling, and entirely unbroken by mountains, almost the entire area of the county could be brought under cultivation.

The principal crops heretofore have been potatoes, wheat, oats, rye, barley, hay and vegetables. As long as these could be produced with the enormous profits which they yielded before cheap transportation brought Puget Sound farmers into competition with California and eastern products, little effort was made by farmers to utilize the adaptability of their lands for fruit production. While there are on Whidby island some of the oldest orchards of the state, which have contributed a considerable proportion of the supply of domestic apples to the Sound markets for thirty years or more, it is only within the past few years that serious attention has been given to the development of the horticultural possibilities of the county. Extensive young orchards of prunes, pears, cherries, apples and a large acreage of small fruits have been put out during the past five years, and each succeeding season will witness a large increase of the acreage devoted to fruit growing. Enough has been done in this line to demonstrate that the varieties named can be cultivated with the best results both as to quality and productiveness.

The county enjoys unexcelled advantages of location. It is situated in the center of the Puget Sound basin, giving its producers the advantage of easy access to all the cities on the Sound, which, as they develop, will afford ever increasing markets for agricultural products.

The development of the county has undoubtedly been retarded by its insular character and the prejudices against such a location which settlers from the inland states usually feel. A glance at the chart of Puget Sound will show the unreasonableness of such prejudice as regards this county. Both islands of the county are separated from the mainland by channels which narrow in places to a few hundred feet, making it possible to span them with comparatively inexpensive bridges. The islands of the county can thus be connected with the continental railway system.

Like other portions of the Puget Sound basin, Island county is largely covered with heavy forests of fir, hemlock, cedar, spruce and alder. Logging has been extensively prosecuted for years, and the county still contains large areas of virgin forests of merchantable timber. A vast amount of spar and pile timber still remains.

The county seat is at Coupeville, a beautifully located village of about 250 population. Population of the county is about 2,000. The climate of the county is in the main similar to that of Puget Sound in general, with the exception that its location in the Strait of Juan de Fuca makes it slightly milder in the winter, and cooler in the summer. It is also located in what is known as the dry belt of Puget Sound. The rainfall ranges from 20 to 30 inches per year.

No. of acres land in county	129,720
No. of acres land taken up under various laws, including grants and reservations	128,521
No. of acres land remaining to be taken up under laws of the United States	1,199
No. of acres granted lands for sale by the State of Washington	13,077
No. of farms	211
No. of acres upland	92,149
No. of acres bottom land	6,000
No. of acres timber land	86,000
No. of acres prairie land	3,900
No. of acres under cultivation	7,700
No. of acres wheat	684
Average yield per acre	38 bush.
No. of acres oats	3,136
Average yield per acre	62 bush.
No. of acres barley	284
Average yield per acre	32 bush.
No. of acres potatoes	1,095
Average yield per acre	149 bush.
No. of acres fruit	375
No. of acres other products	2,125
No. of pounds of wool produced	4,160
No. of dairies	20
No. of cows furnishing milk therefor	300
Average price of dairy products per lb., butter	15c.
Amount of capital invested in dairies	$4,350
No. males employed, farm work	308
Average number of hours employed per day	13
Average number of days employed per year	255
Average wages paid per month	$25
No. of males employed in logging camps	115
Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$35
No. of males employed in saw mills	30
Average number of hours employed per day	10

Average number of days employed per year	150
Average wages paid per month	$35
No. of males employed, common labor, other than manufacturing	26
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$35
No. of males employed in clerical positions	6
Average number of hours employed per day	12
Average number of days employed per year	310
Average wages paid per month	$45
No. of females employed as domestics	17
Average number of hours employed per day	13
Average number of days employed per year	150
Average wages paid per month	$12 50
No. of saw mills in operation	4
Daily capacity of same	40,000
Average actual daily output of same	30,000
Amount of capital invested therein	$35,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	266	241	507
No. of children enrolled in public schools	213	180	393
Average daily attendance	128	114	242
No. of children over 6 years of age not enrolled in any school during year	23	19	42
No. of children between 8 and 15 years of age attending school less than three months during year	52	37	89
No. of teachers employed during year	7	11	18

Average monthly salary paid male teacher during year	$44 64
Average monthly salary paid female teacher during year	$40 00
Estimated value of school houses, including grounds	$4,005 00
Estimated value of school furniture	$1,410 00
Estimated value of apparatus, including maps, charts, etc	$684 00
Estimated value of libraries	$25 00
Total value of all school property	$6,124 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$65 00
Amount of school district bonds outstanding at close of year	None.
Average number of days school was maintained during year	88
No. of school districts in county	14
No. of graded schools in county	None.
No. of private schools taught in county during year	1
No. of school houses built during year	None.
No. of school houses now in county	13
Total seating capacity of all school houses in county	394
No. of districts in county not supplied with school houses	1

JEFFERSON COUNTY.

Jefferson county is bounded on the north by Clallam county, on the east by Kitsap county and Hoods Canal, on the south by Chehalis and Mason counties and on the west by the Pacific ocean. No county in the State of Washington has more of a diversity of resources and possibilities, and there is no more inviting field for the enterprising and industrious immigrant or the intending investor than can be found in Jefferson county. It has a total acreage of 1,101,020, of which something over 200,000 acres has been surveyed by the government, and, of the remaining, contracts for surveying are being entered into every few months. There is now in cultivation in Jefferson county something more than 8,000 acres, and it is estimated that there is at least 50,000 acres suitable for fruit culture. Every variety of northern fruit thrives in the county, and the possibilities in this direction are unsurpassed in the Northwest.

The timber resources of Jefferson county are practically unlimited, and embrace fir, spruce, cedar, alder and maple, there being millions of feet easily accessible for the market. In what is known as the west end of the county, beyond the Olympic range, where government surveying parties are now at work, there are millions of feet of the finest fir and cedar timber, and, although it is not considered accessible for profitable marketing at this time, this virgin timber belt will be penetrated within a few years, and there are fortunes in prospect for those who will become possessed of this timber land. There are eight logging camps in operation in the east end of the county, employing between 125 and 150 men, and the daily output of these camps is between 160,000 and 190,000 feet per day.

There are 1,235 acres reserved by the state as natural oyster beds, and these will all afford profitable investment for cultivation.

There are fully 300 stands of bees in the county, all thriving nicely. Quilcene honey ranks among the best, and bee culture is becoming a paying industry in that section as well as in other parts of the county.

Besides the lumber mills, there are other important industries in Jefferson county, one being a coöperative creamery at Quilcene, which gets its supply from 800 to 1,200 cows daily. It is a profitable business investment, and its establishment has insured similar creameries at Leland and Cheacum valleys.

Among the industrial institutions of Jefferson county are the Key City Steam Boiler Works; the Puget Sound Engineering Works, embracing a ship yard, brass and iron foundry and engineering works; and the Port Townsend Steel Wire and Nail Works. The last named plant embraces machinery for making wire nails, nail mill, brass foundry and machine shop, and keg and barrel factory.

Port Townsend is in the center of the fishing industry of Puget Sound, which is one day destined to rival that of the Atlantic coast. Therefore, a short treatment of the fishing industry of Puget Sound, which is yet in its infancy, is not out of place here. Such an article has been prepared specially for this book by Judge James G. Swan, a member of the Smithsonian Institute and one of the recognized authorities of the United States on fish. His article is as follows:

"The principal fish taken in Jefferson county are salmon, which during their seasons in the spring and fall are taken in large quantities in Port Discovery and Port Townsend, and in all the rivers which empty into Hoods Canal from the bay, and Little Quilcene at Quilcene Bay clear to the Skokomish river near Union City. These salmon are in vast numbers, and are taken by the Indians for their own subsistence, and by the whites to supply the canneries at Seattle and Port Angeles. At present there are no canneries in Jefferson county, although there are no counties on the Sound where canneries could be more profitably located than on Port Townsend Bay and on Hood's Canal.

"Herring, smelt and anchovies are in incredible numbers, and the black cod, the finest food fish in the North Pacific ocean, is also found in the deep waters of Hoods Canal, where it breeds, and the young have been called Spanish mackerel and a variety of names. But as they are in perfection only in the deepest water, from 80 to 200 fathoms, the fishermen do not care to look for them as they can catch other varieties in shallow water, especially halibut and true cod, both of which spawn in Hoods Canal. Trout of various kinds abound in all of the fresh water streams and the various lakes of Jefferson county, and afford excellent sport to fishermen.

"The other edible marine products are clams of several varieties, mussels, scallop crabs, crawfish and shrimp. All of these molluscs are in abundance, but as yet the industry of catching and preparing these excellent food products for the market is in its infancy. Mr. Joseph O. Cates, of the Cape Ann fish market, Port Townsend, has demonstrated the fact that the California anchovy, which is in its greatest perfection in the waters of Puget Sound, are equal to the best imported French sardines when canned in oil in the French style. A sample of Cates' sardines was sent by him to the international fisheries banquet at the World's Fair in Chicago, where they were placed on the banquet tables and pronounced by the experts to be equal to any of the French sardines with which they were compared. Want of capital has prevented Mr. Cates from going into the business extensively, but he has demonstrated the fact of the excellence of these fish, and deserves credit for being the first man to successfully pack sardines in oil on Puget Sound.

"When the Port Townsend Southern Railroad is completed to a connection with transcontinental lines it will give an impetus to the fishing business, and demonstrate that it will be one of the most lucrative industries in Jefferson county and in the State of Washington. All the ocean fish, such as cod, halibut and other varieties, are brought to Port Townsend and sent to Seattle and Tacoma to be shipped east, but the completion of the Port Townsend Southern will bring all this fish business here, to be shipped, and will build up the fishing interests of the entire county of Jefferson."

No. of acres land in county	1,101,020
No. of acres land taken up under various laws, including grants and reservations	208,730
No. of acres land remaining to be taken up under laws of the United States	892,390
No. of acres granted lands for sale by the State of Washington	98,293
No. of farms	170
No. of acres upland	75,000
No. of acres bottom land	25,000
No. of acres timber land	1,000,000
No. of acres prairie land	1,000
No. of acres under cultivation	8,000
No. of acres wheat	250
Average yield per acre	24 bush.
No. of acres oats	250
Average yield per acre	50 bush.
No. of acres barley	25
Average yield per acre	75 bush.
No. of acres hops	40
Average yield per acre	1,500 lbs.
No. of acres sugar beets	25
Average yield per acre	850 bush.
No. of acres potatoes	300
Average yield per acre	300 bush.
No. of acres fruit	80
No. of acres other products	7,000
No. of dairies	25
No. of cows furnishing milk therefor	2,000
Average price for dairy products per lb.	20c.
Amount of capital invested in dairies	$25,000
No. of males employed, farm work	100
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$25
No. of males employed in logging camps	110

Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$45
No. of males employed in saw mills	300
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$60
No. of males employed in manufacturing enterprises, skilled labor	50
Average number of hours employed per day	8
Average number of days employed per year	300
Average wages paid per month	$75
No. of males employed in manufacturing enterprises, common labor	100
Average number of hours employed per day	8
Average number of days employed per year	300
Average wages paid per month	$35
No. of males employed, common labor, other than manufacturing	90
Average number of hours employed per day	10
Average number of days employed per year	280
Average wages paid per month	$30
No. of males employed in clerical positions	25
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$45
No. of females employed in clerical positions	5
Average number of hours employed per day	10
Average number of days employed per year	110
Average wages paid per month	$40
No. of females employed as domestics	25
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$20
No. of mechanics employed in building trades, stone cutters	20
Average number of hours employed per day	8
Average number of days employed per year	100
Average wages paid per day	$4
No. of mechanics employed in building trades, brick masons	20
Average number of hours employed per day	8
Average number of days employed per year	100
Average wages paid per day	$4
No. of mechanics employed in building trades, plasterers	12
Average number of hours employed per day	8
Average number of days employed per year	100
Average wages paid per day	$4
No. of mechanics employed in building trades, carpenters	40
Average number of hours employed per day	8
Average number of days employed per year	220
Average wages paid per day	$2 75
No. of saw mills in operation	5
Daily capacity of same	605,000 ft.
Average actual daily output of same	240,000 ft.
Amount of capital invested therein	$950,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	627	583	1,210
No. of children enrolled in public schools	505	450	955
Average daily attendance	286	261	547
No. of children over 6 years of age not enrolled in any school during year	76	55	131
No. of children between 8 and 15 years of age attending school less than three months during year	12	13	25
No. of teachers employed during year	17	17	34

Average monthly salary paid male teacher during year	$59 90
Average monthly salary paid female teacher during year	$49 15
Estimated value of school houses, including grounds	$136,550 00
Estimated value of school furniture	$5,125 00
Estimated value of apparatus, including maps, charts, etc	$1,405 00
Estimated value of libraries	$479 00
Total value of all school property	$143,559 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$35,730 00
Amount of school district bonds outstanding at close of school year	$101,250 00
Average number of days school was maintained during year	127
No. of school districts in county	20
No. of graded schools in county	1
No. of private schools taught in county during year	None.
No. of school houses built during year	2
No. of school houses now in county	19
Total seating capacity of all school houses in county	1,827
No. of districts in county not supplied with school houses	3

KING COUNTY.

King was one of the first eight counties of the Territory of Washington, created by acts of the legislature of Oregon territory, the other seven being Clarke, Lewis, Pacific, Thurston, Pierce, Island and Jefferson. By the creation of new counties King has been much reduced in area, but it yet includes within its borders nearly 2,000 square miles, or more than the entire State of Rhode Island. Geographically it is in the center of the Puget Sound country, and is but little removed from the center of the state, north to south. It is also about the center of population.

The surface of King county is varied, dropping from the summits of the Cascade mountains 5,000 feet, and more, on the east, to the sea level on the west, with intervening lands of all altitudes between. The county has numerous fine inland waters, such as the Duamish, White, Green, Cedar and Snoqualmie rivers, and Cedar, Samamish, Union and Washington lakes. About these waters are valley lands of great extent and fertility. Upon them are located several fine towns, a large number of highly productive farms, numerous industrial establishments and railroads. The products are agricultural, coal and timber. On either side of these valleys are high lands, generally heavily wooded, the timber chiefly fir, spruce, hemlock and cedar. After clearing they make good home sites, and are adapted to the cultivation of fruit and vegetables, to stock and poultry, and to other lines of general farming. Various minerals are found in these lands, as clays, building stone, coal, iron, lead, gold and silver. The mining of coal has been prosecuted with vigor for twenty years, during which time many millions of tons have been taken out, and consumed both at home and abroad. The character is lignite and bituminous, and grades between. The annual output is not far from 500,000 tons, a figure that would be quickly doubled and trebled did the demand justify. The stone quarried heretofore has been mostly granite and sandstone, for building purposes. A considerable number of grindstones have been made from the product of one of the quarries. Marble has been found. From clays an immense number of common house brick have been made, as well as pressed, vitrified and fire brick. Sewer pipe of home make has not only stopped the large importations of former years, but is now going abroad to supply the wants of communities elsewhere. Tiles, and terra cotta decorations for lawns and buildings, are made. The first glass factory is now in course of construction, and if properly managed there is reason to believe it will be in every way successful. Analyses of the large deposits of iron ores are gratifying, indicating quality the best. The deposits, however, are in the mountains, far from railroads, without which they cannot be developed. This lack of transportation facilities interferes likewise with the development of other mineral and timber interests in the same region. The lands near the sea are low, but are irregular, up and down, ravines and plateaus, marshes, slopes and in every other way broken. So, also, of the soil; on an ordinary quarter section clay, sand, muck, loam and gravel being found to suit every want. Rivers, creeks and small streams empty into the Sound at short intervals. One of the large islands of the Sound is in King county—Vashon—upon which is a population of several hundred thrifty tillers of the soil. The bays are Commencement, Quartermaster, Trump, Shilshole and Seattle Harbor.

The fish industry is one of the chief sources of income to the people. Vast progress has been made in its development during the years 1894 and 1895. A single cannery in Seattle put up 80,000 cases of canned salmon in the latter year. The salmon run was the greatest on record. The fish were here by millions, and were caught by thousands in the seines of the fishermen, as high as 17,000 fish being taken in one day by the boats of a single firm. Besides those canned, carload after carload of salmon, halibut, cod, herring and smelt, barreled or boxed in salt or ice, has been sent away to southern and eastern points, and even to foreign countries. Thirteen schooners in the Japan and Behring seal fisheries made Seattle their outfitting and return port. The oyster, clam, crab and shrimp traffic is also of increasing value. It is only a question of time until the fisheries of the North Pacific will equal those of the North Atlantic or other parts of the world, and it is no more a question that at that time Puget Sound will be the center and chief beneficiary of the enormous traffic.

The county is well supplied with railroads, five companies owning and operating lines aggregating 300 miles. Two of these are transcontinental lines, each terminating in King county.

The climate is genial, agreeable and healthful. The rainfall ranges from 30 to 50 inches per annum, averaging 40. In 1895 it was at the minimum—30. Snow is more uncertain. Some years no snow falls; other years it comes to a considerable depth. An average of about one foot, with continuance of a week, would be a fair estimate. Three times in forty years has the temperature reached zero. The maximum is about 90°. Average temperature the year through is 52°. Cyclones and tornadoes are unknown. Lightning is infrequent. The annual mortality is 7.08 per thousand inhabitants.

Hops, hay, grain, fruits, vegetables, poultry, live stock, milk and butter are the leading farm products. Shipments of these are freely made to Alaska, British Columbia and the Eastern states. Many carloads of berries, cherries and prunes were sent to St. Paul and Chicago in 1895. It has also been demonstrated that the finer grades of flax fiber can be produced.

The chief industry of manufacture is lumber and shingle making. The mills have a capacity for cutting 900,000 feet of lumber and 2,025,000 shingles per day. They are operated more or less actively as the demands of trade justify. Their products are sent by rail in immense quantities to the states bordering the Great Lakes and in the Mississippi valley. By ship they are sent to Central America, Hawaii, domestic Atlantic ports, South Africa, Australia and other ports. Cottonwood, maple, alder, hemlock, spruce, madrona, pine, yew and ash are found and extensively used in furniture making, boxes, tanning, etc. Ship building and ship repairing are industries of importance. At this time two vessels—a torpedo boat and a tug—are building by a local firm for the government of the United States. Yachts, fishing vessels, trading schooners and steamers of various kinds are constantly on the stocks and ways. The milling of grain, brewing, making of brick and pottery, candy and cracker making, iron and brass foundries, machine shops, woolen mills, making of boots and shoes, leather making, printing and lithographing, car building, all are leading industries.

The United States census of 1860 found in King county 302 inhabitants; of 1870, 2,174; of 1880, 6,910; of 1890, 63,989. The latest census, that of the state, was in 1892, when 78,762 pesons were counted. The present population is estimated at 90,000 in number. The population has gained at the rate of about 100 per cent. per annum since 1880, about 150 per cent. since 1870, and about 2,000 per cent. since 1860.

Seattle is the seat of King county. It is a modern city, supplied with all the conveniences of the times. Its population, which numbered 3,533 in 1880, and 42,837 in 1890, is estimated in the directory for 1895–96 at 67,568. It is handsomely built, with dwellings, mercantile houses and public buildings that would do credit to any city. Its principal streets are paved with vitrified brick. Trains come and go daily to and from the city over the lines of the Great Northern, Northern Pacific, Canadian Pacific, Columbia & Puget Sound, and Seattle, Lake Shore & Eastern Railways. Ships ply freely in the California, Alaska and foreign trades. The opening of waterways and canals and the filling of tide lands, now in hand, will cost several million dollars, and add greatly to the convenience and value of the city for the purposes of commerce. Seattle has a hundred miles of cable and electric street railway. It has public and private schools of the best character. Its manufactures are varied and extensive. Its people are deeply interested in the fisheries. Their trade exceeds $60,000,000 per annum. No city has a lower death rate. No city has finer scenery. No city is more hopeful and promising than Seattle.

No. of coal mines in operation	8
No. of employes	1,025
No. of days employed annually	300
No. of hours employed per day	10
Wages paid per day	$2
Total product per year	389,775 tons.
No. of acres land in county	1,310,380
No. of acres land taken up under various laws, including grants and reservations	758,019
No. of acres land remaining to be taken up under laws of the United States.	552,361
No. of acres granted lands for sale by the State of Washington	79,490
No. of acres granted lands for sale by Northern Pacific R. R. Co	129,264

No. of farms	1,070
No. of acres upland	493,372
No. of acres bottom land	42,880
No. of acres timber land	395,000
No. of acres coal land	12,800
No. of acres mineral land	2,500
No. of acres under cultivation	31,840
No. of acres wheat	100
Average yield per acre	35 bush.
No. of acres oats	213
Average yield per acre	80 bush.
No. of acres barley	66
Average yield per acre	32 bush.
No. of acres hops	4,400
Average yield per acre	1,500 lbs.
No. of acres sugar beets	47
Average yield per acre	8 tons.
No. of acres potatoes	2,144
Average yield per acre	250 bush.
No. of acres fruit	1,658
No. of acres other products	23,200
No. of dairies	40
No. of cows furnishing milk therefor	2,200
Average price for dairy products per lb.	butter, 20c.; milk, 7c. per gal.
Amount of capital invested in dairies	$50,000
No. of males employed, farm work	2,144
Average number hours employed per day	13
Average number of days employed per year	300
Average wages paid per month	$20
No. of males employed in general mining	1,440
Average number of hours employed per day	8¼
Average number of days employed per year	200
Average wages paid per month	$50
No. of males employed in logging camps	300
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$30
No. of males employed in saw mills	1,330
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$25
No. of males employed in manufacturing enterprises, skilled labor	711
Average number of hours employed per day	8
Average number of days employed per year	160
Average wages paid per month	$100
No. of males employed in manufacturing enterprises, common labor	1,061
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$40
No. of males employed, common labor, other than manufacturing	6,000
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed in clerical positions	1,170
Average number of hours employed per day	9
Average number of days employed per year	300
Average wages paid per month	$50
No. of females employed in clerical positions	400
Average number of hours employed per day	8
Average number of days employed per year	300

Average wages paid per month	$20
No. of females employed in manufacturing enterprises	600
Average number of hours employed per day	8
Average number of days employed per year	200
Average wages paid per month	$20
No. of females employed as domestics	2,400
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$15
No. of mechanics employed in building trades, stone cutters	10
Average number of hours employed per day	8
Average number of days employed per year	120
Average wages paid per day	$4 50
No. of mechanics employed in building trades, brick masons	35
Average number of hours employed per day	8
Average number of days employed per year	120
Average wages paid per day	$4 75
No. of mechanics employed in building trades, plasterers	30
Average number of hours employed per day	8
Average number of days employed per year	150
Average wages paid per day	$4
No. of mechanics employed in building trades, carpenters	100
Average number of hours employed per day	9
Average number of days employed per year	150
Average wages paid per day	$2 50
No. of saw mills in operation	17
Daily capacity of same	900,000 ft.
Amount of capital invested therein	$1,500,000
No. of shingle mills in operation	21
Daily capacity of same	2,025,000
Amount of capital invested	$140,000
No. of other woodworking factories	8
Amount of capital invested	$47,000
Total output of saw mills, 1895	120,600,000 ft.
Total output of shingle mills, 1895	854,473,000
No. of feet of lumber shipped by water	21,175,900
No. of feet of lumber shipped by rail	19,700,000
Value of all	$408,759
No. of shingles shipped	308,495,000
Value of same	$350,169
No. of pounds of fish shipped	8,490,000
Value of same	$43,000
No. of fishermen employed	425
No. of flour mills in operation	1
Daily capacity of same	200 bbls.
Average daily output of same	200 bbls.
Amount of capital invested	$57,500
Total output for 1895	60,000 bbls.
Quantity of product consumed in state	45,000 bbls.
Quantity of product exported from state	15,000 bbls.
No. of soap works in operation	2
Monthly production of same	200,000 lbs.
Amount of capital invested	$34,500
Total output for 1895	2,400,000 lbs.
Quantity of product consumed in state	1,350,000 lbs.
Quantity of product exported from state	1,050,000 lbs.
Fish cannery in operation	1
Daily capacity of same	1,500 cases.
Average daily output of same	900 cases.
Amount of capital invested	$35,000

Total output for 1895	80,000 cases.
Quantity of product consumed in state	150 cases.
Balance of product exported from state	79,850 cases.
Woolen mill in operation	1
Daily capacity of same	500 lbs.
Average daily output of same	300 lbs.
Amount of capital invested	$50,000
Total output for 1895	75,000 lbs.
Quantity of product consumed in state	40,000 lbs.
Quantity of product exported from state	35,000 lbs.
No. of breweries in operation	2
Amount of capital invested	$1,000,000
Total output for 1895	37,398 bbls.
No. of brick yards in operation	5
Annual capacity	36,000,000
Output for 1895	10,600,000
Amount of capital invested	$102,000
No. of broom factories in operation	2
Daily capacity of same	60 doz.
Average daily output of same	40 doz.
Amount of capital invested	$6,000
Total output for 1895	8,000 doz.
No. of foreign and coastwise vessels, including British Columbia, California and Alaska	1,378
Aggregate registered net tonnage of same	842,981
No. of Sound steamers making regular trips from Seattle	68
Aggregate registered net tonnage of same	25,395
Regular steamers between Seattle and San Francisco	5
Regular steamers between Seattle and Alaska	5
Regular steamers between Seattle and Portland, Oregon	1
Regular steamers between Seattle and Central America	1

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	8,471	8,563	17,034
No. of children enrolled in public schools	6,002	6,342	12,344
Average daily attendance	4,336	4,552	8,888
No. of children over 6 years of age not enrolled in any school during year	2,247	2,085	4,332
No. of children between 8 and 15 years of age attending school less than three months during year*	261	211	472
No. of teachers employed during year	86	246	332
No. of teachers employed in private schools during year	3	2	5

Average monthly salary paid male teacher during year*	$63 10
Average monthly salary paid female teacher during year	$54 77
Estimated value of school houses, including grounds	$906,000 00
Estimated value of school furniture	$57,821 00
Estimated value of apparatus, including maps, charts, etc	$12,754 00
Estimated value of libraries	$2,658 00
Total value of all school property	$979,233 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$341,033 00
Amount of school district bonds outstanding at close of school year	$565,350 00
Average number of days school was maintained during year	113
No. of school districts in county	122
No. of graded schools in county	16
No. of private schools taught in county during year*	3
No. of school houses built during year	4
No. of school houses now in county	143
Total seating capacity of all school houses in county	16,654
No. of districts in county not supplied with school houses	5

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*Not including city of Seattle.

KITSAP COUNTY.

Kitsap county is one of the western tier of counties; situated directly west across the Sound from King county. It is a peninsula county, formed by Puget Sound on the east and Hoods Canal on the west, the two bodies of water almost entirely surrounding the county.

There are two incorporated towns in the county. Sidney, the county seat, is located on Port Orchard Bay, one of the many arms of Puget Sound, and seventeen miles west of Seattle. It is nearly centrally located in the county, and surrounded by an abundance of good hay, fruit and farming lands. Charleston, or Port Orchard, is the other incorporated town, and is also located on the same body of water on the opposite side thereof from Sidney. The Puget Sound naval station and dry dock is located directly north of Sidney, distant three-fourths of a mile.

Kitsap county, besides being the site of a great government station and dry dock, the largest in the United States, contains two of the largest saw mills in the state, the Port Blakeley mills being the largest, the Puget Sound Mill Company's plant the next. Besides these there are others of smaller capacity. Port Blakeley, Port Gamble, Decateur and Colby are promising towns of the county, but neither of them have taken steps to incorporate.

The immense growth of fir in this county made it one of the leading counties in the manufacture of lumber, but now as the timber disappears the mills are compelled to look to other counties for their supply of logs. This has left Kitsap county open for settlers, and the orchard is fast supplanting the fir, and the waving fields of grass are an inviting element for the creamery and dairy.

The county is penetrated in all directions by different arms of the interminable Puget Sound, and as a consequence it has within its limits Port Orchard Bay, Port Washington Bay and Dog Fish Bay, besides many other indentations into which rush the mighty ocean currents, and along the shores of each of them are to be found the ranches of the industrious farmers.

The county offers many inducements to the home seekers desirous of obtaining land suitable for all general purposes and at reasonable prices. Besides the advantage of a good market during the entire year, the government station recently taken charge of by the government opens another immense source of demand for the products of Kitsap county. Daily steamers ply between Seattle and all points in the county.

No. of acres land in county	190,500
No. of acres land taken up under various laws, including grants and reservations	189,415
No. of acres land remaining to be taken up under laws of the United States	1,085
No. of acres granted lands for sale by the State of Washington	12,821
No. of farms	879
No. of acres upland	139,947
No. of acres bottom land	3,998
No. of acres timber land	55,979
No. of acres under cultivation	4,398
No. of acres wheat	10
Average yield per acre	35 bush.
No. of acres oats cut for hay	307
No. of acres hops	12
Average yield per acre	1,500 lbs.
No. of acres potatoes	493
Average yield per acre	150 bush.
No. of acres fruit	396
No. of acres other products	3,180
No. of dairies	5
No. of cows furnishing milk therefor	91
Average price for dairy products per pound, butter	22c.
Amount of capital invested in dairies	$6,500
No. of males employed, farm work	400
Average number of hours employed per day	10
Average number of days employed per year	209
Average wages paid per month	$15
No. of males employed in logging camps	89
Average number of hours employed per day	10
Average number of days employed per year	212
Average wages paid per month	$35
No. of males employed in saw mills	625
Average number of hours employed per day	10
Average number of days employed per year	291
Average wages paid per month	$28
No. of males employed in manufacturing enterprises, skilled labor	35
Average number of hours employed per day	8
Average number of days employed per year	210
Average wages paid per month	$70
No. of males employed in manufacturing enterprises, common labor	50
Average number of hours employed per day	8
Average number of days employed per year	205
Average wages paid per month	$60
No. of males employed, common labor, other than manufacturing	122
Average number of hours employed per day	9
Average number of days employed per year	205
Average wages paid per month	$35
No. of males employed in clerical positions	54
Average number of hours employed per day	8
Average number of days employed per year	300
Average wages paid per month	$80
No. of females employed as domestics	25
Average number of hours employed per day	14
Average number of days employed per year	290

Average wages paid per month	$12
No. of mechanics employed in building trades, stone cutters	22
Average number of hours employed per day	8
Average number of days employed per year	115
Average wages paid per month	$75
No. of mechanics employed in building trades, plasterers	10
Average number of hours employed per day	8
Average number of days employed per year	110
Average wages paid per month	$75
No. of mechanics employed in building trades, carpenters	30
Average number of hours employed per day	10
Average number of days employed per year	115
Average wages paid per month	$50
No. of saw mills in operation	4
Daily capacity of same	950,000 ft.
Average actual daily output of same	610,000 ft.
Amount of capital invested therein	$2,500,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	951	764	1,715
No. of children enrolled in public schools	663	569	1,232
Average daily attendance	442	362	804
No. of teachers employed during year	22	35	57
No. of teachers employed in private schools during year	......	3	3

Average monthly salary paid male teacher during year	$37 57
Average monthly salary paid female teacher during year	$41 03
Estimated value of school houses, including grounds	$20,181 00
Estimated value of school furniture	$5,669 00
Estimated value of apparatus, including maps, charts, etc	$1,607 00
Estimated value of libraries	$86 00
Total value of all school property	$27,543 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$6,852 00
Amount of school district bonds outstanding at close of school year	$13,492 00
Average number of days school was maintained during year	92
No. of school districts in county	40
No. of graded schools in county	1
No. of private schools taught in county during year	3
No. of school houses built during year	2
No. of school houses now in county	37
Total seating capacity of all school houses in county	1,626
No. of districts in county not supplied with school houses	3

KITTITAS COUNTY.

The county of Kittitas is situated in the central part of the state, embracing nearly 3,000 square miles of territory, divided equally between hills and plains. It is bounded on the north by the Wenatchee river, on the east by the Columbia river, on the south by a spur of foothills dividing the Yakima and Kittitas valleys, and on the west by the Cascade range of mountains. The farming lands are divided into two parts, the Kittitas and Wenatchee valleys.

The Kittitas valley is in the form of a basin, with an area of 20x25 miles, surrounded on all sides by foothills and mountains, and is noted for agriculture, horticulture and the dairy industry. The Wenatchee valley is much smaller and is divided into small fruit farms.

The mountains are productive of coal, iron, gold and silver, and mining industries are established and well advanced. Stamp mills are in operation, yielding a good dividend, and the placer mines of the Swauk district, in the northern part of the county, yield big returns and improve each year.

The foothills supply excellent timber for building purposes, and afford wide range for stock.

The population of the county is placed at about 8,000, the majority of which is in the Kittitas valley.

Ellensburg, the county seat and principal city in the county, is situated in the center of Kittitas valley, on the Northern Pacific Railroad and Yakima river. The state normal school is located here.

Agriculture and horticulture are carried on to perfection by aid of irrigation. The water supply comes from the Cascade mountains, where the heavy snowfall in winter provides an abundance for the summer season. The gentle slope of the valley from end to end is peculiarly adapted for an even distribution of water for the purposes of irrigation.

The Wenatchee valley, separated from the Kittitas by the Wenatchee mountains, lying in the north end of the county and at the confluence of the Wenatchee and Columbia rivers, has already become famous throughout the entire Northwest for the variety and quality of its fruits. The valley is nearly 10 miles long and about 5 miles wide, and as yet but a small portion of it is under cultivation. Nevertheless, it contains some of the finest orchards in the Northwest, producing apricots, peaches, pears, grapes, plums and apples, all of which find a ready market in the east, principally in Montana, the Dakotas and Minnesota.

Attention has recently been turned to the raising of sweet potatoes by some of the farmers of Kittitas county, and during the summer of 1895 several carloads were raised and shipped. The result of this experiment was very satisfactory and promises to grow to a considerable extent. The prune industry is rapidly coming to the front and marks a new era in the prosperity of the county. Melons, tomatoes and all kinds of vegetables are raised in abundance, while experiments with tobacco and peanuts have fully proven the adaptability of the soil and climate to their successful culture.

The Wenatchee valley slopes gently to the Columbia river, upon the banks of which, about midway of the valley, stands the town of Wenatchee, the distributing point for the famous Big Bend country, as well as the extensive mining regions to the north.

Roslyn, in the northwestern part of the county, is the location of a large and extensive coal mining plant, employing constantly about 1,000 men.

There are now eighteen creameries in operation in the county, the product of which ranks high in the markets. This industry, however, is in its infancy, and will grow into the leading industry of the county.

There are more than 43,000 acres of land under cultivation in Kittitas county, and by reason of irrigation failure of crops is unknown. The soil of the county is a rich, sandy loam, productive in the highest degree.

No. of coal mines in operation	6
No. of employes	1,014
No. of days employed annually	280
No. of hours employed per day	10
Wages paid per day	$2
Total product per year	276,970 tons.
No. of acres land in county	1,095,130
No. of acres land taken up under various laws, including grants and reservations	644,209
No. of acres land remaining to be taken up under laws of the United States	450,921
No. of acres granted lands for sale by the State of Washington	107,786
No. of acres ganted lands for sale by Northern Pacific R. R. Co	380,775
No. of farms	744
No. of acres timber land	107,200
No. of acres coal land	1,200
No. of acres under cultivation	43,254
No. of acres irrigated	40,000
No. of miles of irrigating ditches	95
No. of acres wheat	19,765
Average yield per acre	26 bush.
No. of acres oats	3,200
Average yield per acre	36 bush.
No. of acres barley	2,685
Average yield per acre	36 bush.
No. of acres hay	16,880
Average yield per acre	2 tons.
No. of acres potatoes	450
Average yield per acre	208 bush.
No. of acres fruit	326
No. of acres other products	148
No. of pounds of wool produced	405,000

Average price for dairy products per lb., butter	24c.
No. of males employed, farm work	684
Average number of hours employed per day	11
Average number of days employed per year	250
Average wages paid per month	$18
No. of males employed in saw mills	25
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$26
No. of males employed, common labor, other than manufacturing	387
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$20
No. of males employed in clerical positions	50
Average number of hours employed per day	11
Average number of days employed per year	300
Average wages paid per month	$45
No. of females employed in clerical positions	10
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of mechanics employed in building trades, brick masons	5
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$80
No. of mechanics employed in building trades, plasterers	5
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$75
No. of mechanics employed in building trades, carpenters	60
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$65
No. of saw mills in operation	6
Daily capacity of same	35,000 ft.
Average actual daily output of same	30,000 ft.
Amount of capital invested therein	$10,000
No. of flour mills in operation	3
Daily capacity of same	215 bbls.
Amount of capital invested	$90,000
Total output for 1895	55,000 bbls.
Quantity product consumed in state	35,800 bbls.
Quantity product exported from state	19,200 bbls.

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,539	1,576	3,115
No. of children enrolled in public schools	1,193	1,215	2,408
Average daily attendance	780	768	1,548
No. of children over 6 years of age not enrolled in any school during year	293	293	586
No. of children between 8 and 15 years of age attending school less than three months during year	154	128	282
No. of teachers employed during year	29	50	79
No. of teachers employed in private schools during year	......	3	3

Average monthly salary paid male teacher during year	$48 92
Average monthly salary paid female teacher during year	$47 27
Estimated value of school houses, including grounds	$85,006 00
Estimated value of school furniture	$9,029 00
Estimated value of apparatus, including maps, charts, etc	$4,560 00
Estimated value of libraries	$286 00

Total value of all school property	$98,881 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$21,345 60
Amount of school district bonds outstanding at close of school year	$68,700 00
Average number of days school was maintained during year	100
No. of school districts in county	44
No. of graded schools in county	4
No. of private schools taught in county during year	3
No. of school houses built during year	5
No. of school houses now in county	41
Total seating capacity of all school houses in county	2,810
No. of districts in county not supplied with school houses	3

KLICKITAT COUNTY.

Klickitat county is bounded on the west by Skamania county, on the north by Yakima county, on the east by Walla Walla county, and on the south by the Columbia river. It has an average width of 25 miles and is 125 miles long, contains about 3,000 square miles and a population of nearly 6,000; has a river frontage of 120 miles on the Columbia river, one of the largest rivers in the United States, the obstructions in which the government is now removing. More than one-half the land in the county is susceptible of cultivation; the remaining is fine grazing and timber land.

The northern and western parts of the county are covered with timber, except an occasional prairie, the principal varieties of which are fir, pine, spruce and hemlock, some of them reaching an immense size.

Camas Prairie, situated in the western part of the county, is noted for its fine cattle, grasses and dairies. The soil of the prairie lands is a black, sandy loam, and is very productive. The principal crops grown are wheat, oats, barley and rye, and timothy on the bottom lands. Corn has also proven to be a paying crop. For small fruits and vegetables it is equal to any other country. The hardy fruits, such as apples, pears, plums, prunes, cherries and crab apples do well wherever they have been tried, and on the Columbia river, in addition to the varieties above enumerated, peaches, apricots and grapes of nearly all varieties, grow in great perfection. No irrigation is needed to produce any kind of crops in the county. Good improved lands can be bought at from $5 to $25 per acre, according to locality and the improvements thereon, and considerable government lands yet remain subject to entry.

Goldendale is the county seat, and is situated in the Klickitat valley, on the Little Klickitat river near the border of an extensive forest of pine and fir.

Two flouring mills, sash and door factory, and several saw mills are now in steady operation in different parts of the county.

There are a number of towns and small settlements located in various parts of the county. Bickleton and Cleveland are situated in the western part, known as the Alder Creek country, the former town being but a few miles from the widely known Horse Heaven stock and agricultural region. Bickleton is finely situated and is a growing and prosperous town. Cleveland, about three miles from Bickleton, is rapidly pushing to the front. Among the other towns and hamlets may be mentioned Centerville, Dot, Pleasant, Blockhouse, Canyon, Columbus, Lyle, Trout Lake, Rockland and Fountain City.

No. of acres land in county	1,413,500
No. of acres land taken up under various laws, including grants and reservations	759,483
No. of acres land remaining to be taken up under laws of the United States	654,017
No. of acres granted lands for sale by the State of Washington	87,980
No. of acres granted lands for sale by Northern Pacific Railroad Co	192,600
No. of farms	1,120
No. of acres under cultivation	66,800
No. of acres wheat	40,000
Average yield per acre	20 bush.
No. of acres oats	6,000
Average yield per acre	35 bush.
No. of acres barley	6,000
Average yield per acre	30 bush.
No. of acres corn	3,000
Average yield per acre	10 bush.
No. of acres potatoes	200
Average yield per acre	90 bush.
No. of acres fruit	250
No. of acres other products	11,350
No. of pounds of wool produced	750,000
No. of dairies	6
No. of cows furnishing milk therefor	100
Average price for dairy products per lb., butter	20c.
No. of males employed in saw mills	120
Average number of hours employed per day	10
Average number of days employed per year	140
Average wages paid per month	$25
No. of saw mills in operation	12
Daily capacity of same	96,000 ft.
Average actual daily output of same	80,000 ft.
Amount of capital invested therein	$54,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,271	1,166	2,437
No. of children enrolled in public schools	976	865	1,841
Average daily attendance	629	584	1,213

	Male.	*Fem.*	*Total.*
No. of children over 6 years of age not enrolled in any school during year	183	206	389
No. of children between 8 and 15 years of age attending school less than three months during year	149	134	283
No. of teachers employed during year	37	43	80
No. of teachers employed in private schools during year	2	5	7

Average monthly salary paid male teacher during year	$36 75
Average monthly salary paid female teacher during year	$49 70
Estimated value of school houses, including grounds	$18,310 00
Estimated value of school furniture	$3,064 00
Estimated value of apparatus, including maps, charts, etc	$1,665 00
Estimated value of libraries	$45 00
Total value of all school property	$23,084 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$5,745 00
Amount of school district bonds outstanding at close of school year	$4,550 00
Average number of days school was maintained during year	79
No. of school districts in county	57
No. of graded schools in county	1
No. of private schools taught in county during year	7
No. of school houses built during year	1
No. of school houses now in county	54
Total seating capacity of all school houses in county	2,182
No. of districts in county not supplied with school houses	3

LEWIS COUNTY.

The situation of Lewis county is midway between the Columbia river and Puget Sound. It is about 30 miles wide north and south. Its eastern boundary is the summit of the Cascades, its western the summit of the Coast range, the distance east and west being nearly one hundred miles. The Cowlitz river basin covers the eastern and southern area, the water draining southwestward into the Columbia river.

The Chehalis river drains the great agricultural basin which spreads out over the central and western portions of the county, the affluents all meeting at Chehalis and flowing out north and west into the Pacific ocean. The greater portion of the county is covered with forests of fir, cedar, hemlock and spruce. Upward of fifty thousand acres were originally rich alluvial prairie lands. The prairies or openings were taken up by the settlers a half century ago under the "donation land claim act." These old "claims," found here and there through the county, with their ancient looking, colonial farm buildings, old orchards and moss covered rail fences, appear in strange contrast to the "clearings" of the eastern settler.

There is yet considerable government land not taken and a large amount of unsold railroad and school lands. Improved farms are worth from $10 to $75 per acre; unimproved lands from $5 to $15 per acre, according to location and quality. The fertility of the soil and the variety and abundance of the products are unsurpassed. All kinds of grain and grasses grow in perfection. The yield of wheat reaches 35 bushels to the acre; oats, 100, about 50 bushels of oats being an average yield. Potatoes frequently yield 400 bushels. Hay often exceeds three tons, and the yield is seldom less than two. Apples, pears, plums, prunes, cherries and all kinds of small fruits yield abundantly and of the finest quality. The hop acreage of Lewis county is second only to that of the Puyallup valley. The nearness of Tacoma, Seattle, Portland and the cities on the coast harbors supply a ready and reliable market for all excess products of the farm, garden, orchard and dairy. The winter season is so mild that grass remains green the year round.

Vast belts of timber cover the hill portions of the county. The many small lumber mills located on the railroads and on the rivers are but as so many hand sickles in a Dakota wheat field. A single quarter section of timber will supply an average one of these mills with logs for a year's cut.

Coal crops out over the county everywhere, lignite in the west, bituminous in the middle east, and anthracite in the more remote mountains east. The finger can hardly be placed anywhere upon a map of the county and not cover located veins.

For years keen sighted, adventurous miners, enticed by the discovery in mountain streams of yellow beads of free gold or chippings of tinted quartz, have climbed up the mountain sides through jungles of almost impenetrable forests, and down ravines with their burdens of pick, shovel, explosives and grub stakes. But the search for hidden treasures seemed vain. Thick standing trees stood up as walls, and shut off the view, and the rocks were hidden beneath dense growths of underbrush. At last, however, doors to the mountains' storehouses of mineral wealth are being opened. First an accidental clue, then a foot by foot search, until during the past year great fields of mineral deposits have been located. Many eyes are toward the foothills of St. Helens and Rainier, watching with eager expectancy the mining developments in Lewis county.

Chehalis is the county seat, and has a population of about 2,000. Population of the county is about 12,000.

No. of coal mines in operation	3
No. of employes	15
No. of days employed annually	200
No. of hours employed per day	10
Wages paid per day	$2 75
Total product per year	11,250 tons.
No. of acres land in county	1,527,720
No. of acres land taken up under various laws, including grants and reservations	796,516
No. of acres land remaining to be taken up under laws of the United States	731,204
No. of acres granted lands for sale by the State of Washington	106,769
No. of acres granted land for sale by Northern Pacific R. R. Co	145,865
No. of farms	1,500
No. of acres timber land	1,000,000
No. of acres prairie land	25,000
No. of acres coal land	311,000
No. of acres under cultivation	29,657
No. of acres wheat	3,000
Average yield per acre	25 bush.
No. of acres oats	7,000
Average yield per acre	50 bush.
No. of acres hops	1,000
Average yield per acre	1,500 lbs.
No. of acres potatoes	700
Average yield per acre	250 bush.
No. of acres fruit	2,500
No. of acres other products	15,457
No. of dairies	15
No. of cows furnishing milk therefor	450
Average price for dairy products per pound, butter	25c.
No. of males employed, farm work	300
Average number hours employed per day	10
Average number days employed per year	300
Average wages paid per month	$22
No. of males employed in logging camps	400
Average number of hours employed per day	10
Average number of days employed per year	290
Average wages paid per month	$40
No. of males employed in saw mills	475
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$30
No. of males employed in manufacturing enterprises, skilled labor	60
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per day	$2 50
No. of males employed, common labor, other than manufacturing	300
Average number of hours employed per day	10
Average number of days employed per year	205
Average wages paid per month	$40
No. of males employed in clerical positions	125
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$50
No. of females employed in clerical positions	[illegible]
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$35
No. of mechanics employed in building trades, carpenters	150
Average number of hours employed per day	10

Average number of days employed per year	210
Average wages paid per month	$65
No. of saw mills in operation	15
Daily capacity of same	450,000 ft.
Average actual daily output of same	225,000 ft.
Amount of capital invested therein	$190,000
No. of shingle mills in operation	9
Daily capacity of same	525,000
Average daily output of same	350,000
Amount of capital invested	$75,000
No. of flour mills in operation	2
Daily capacity of same	60 bbls.
Average daily output of same	60 bbls.
Amount of capital invested	$20,000
Total output for 1895	12,000 bbls.
Furniture factory in operation	1
Capital invested	$50,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	2,685	2,537	5,222
No. of children enrolled in public schools	2,271	2,047	4,318
Average daily attendance	1,542	1,426	2,968
No. of children over 6 years of age not enrolled in any school during year	471	406	877
No. of children between 8 and 15 years of age attending school less than three months during year	213	182	395
No. of teachers employed during year	72	97	169
No. of teachers employed in private schools during year	2	3	5

Average monthly salary paid male teacher during year	$38 57
Average monthly salary paid female teacher during year	$35 16
Estimated value of school houses, including grounds	$77,353 00
Estimated value of school furniture	$13,354 00
Estimated value of apparatus, including maps, charts, etc	$3,329 00
Estimated value of libraries	$514 00
Total value of all school property	$94,550 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$26,756 00
Amount of school district bonds outstanding at close of school year	$56,900 00
Average number of days school was maintained during year	88
No. of school districts in county	94
No. of graded schools in county	4
No. of private schools taught in county during year	2
No. of school houses built during year	8
No. of school houses now in county	91
Total seating capacity of all school houses in county	5,247
No. of districts in county not supplied with school houses	5

LINCOLN COUNTY.

Lincoln county originally formed, with Douglas, the western half of Spokane county. The territorial legislature of 1883 divided Spokane county into three divisions, the western half forming Douglas, and the middle portion forming the present county of Lincoln. The seat of government is located at Sprague, a thrifty little city of nearly 2,000 souls, situated on the main line of the Northern Pacific Railroad, near the southeastern portion of the county. The principal towns of the county, in the order of size, are Sprague, Davenport, Wilbur, Harrington and Reardon.

Lincoln county covers an area of about 2,300 square miles. A conservative estimate places the number of acres under cultivation at nearly 300,000. Two-thirds of the county, perhaps, is adapted to agriculture, and the other third may be summed up as grazing, timber and mineral lands. The country is more level through the southwest portion of the county, the soil lighter, with here and there a lake surrounded with scab lands, which is given up largely to the grazing of stock. The lands become more rolling, however. as the traveler approaches the Spokane and Columbia rivers, the soil being darker, heavier and much more fertile. Besides wheat, oats, barley, rye and other cereals, which produce so well on the rolling upland prairies, vegetables of all kinds and all the hardier fruits are now grown in greatly increased quantities from year to year, and require but little cultivation. Nearly every farmer who has been on a quarter section of land long enough to prove title, now has a good orchard which supplies his own wants and affords something for the general market. Along the rivers and valleys leading from the rivers, fruits, such as pears, peaches, strawberries, grapes, etc., are produced with great success, the culture of which now form a leading industry.

Among the growing industries of the county might be mentioned creameries, cheese factories and packing establishments, the latter for curing and preparing meats for the market. These industries are receiving much attention, and a considerable number of the farming population are now engaged in dairying and hog raising, which has been found to be quite profitable.

The climate may be described as temperate and exceptionally healthful. The snow lies on usually about two months, the mercury seldom dropping down to zero in winter and rarely getting above 80 degrees in summer. Large bands of horses range on the hills the year around without care.

Two transcontinental railroads traverse the county from east to west; the Northern Pacific passing through the southern portion and the Great Northern through the center. Besides these two, branch lines have been built interior; the Central Washington, extending from Cheney *via* Davenport to Coulee City, in Douglas county, and the Seattle, Lake Shore & Eastern Railroad, built from Spokane to Davenport. Both these branches will eventually be extended to tide water.

Choice agricultural lands can be bought on easy terms at prices ranging from $3 to $10 per acre. There still remains considerable government land of good quality subject to entry.

No. of placer mines in operation	5
No. of employes	60
No. of days employed annually	200
No. of hours employed per day	10
Wages paid per day	$1 50
Total yield of placer mines for season	$16,500 00
Capital invested	$5,000 00
No. of acres land in county	1,490,250
No. of acres land taken up under various laws, including grants and reservations	1,252,436
No. of acres land remaining to be taken up under laws of the United States	237,814
No. of acres granted lands for sale by the State of Washington	80,168
No. of acres granted lands for sale by Northern Pacific R. R. Co	309,144
No. of farms	2,798
No. of acres upland	990,230
No. of acres bottom land	5,000
No. of acres timber land	140,000
No. of acres prairie land	1,200,000
No. of acres under cultivation	300,000
No. of acres wheat	172,500
Average yield per acre	20 bush.
No. of acres oats	20,460
Average yield per acre	37 bush.
No. of acres barley	20,600
Average yield per acre	41 bush.
No. of acres corn	1,025
Average yield per acre	35 bush.
No. of acres potatoes	3,175
Average yield per acre	170 bush.
No. of acres fruit	1,500
No. of acres other products	80,740
No. of pounds of wool produced	78,900
Average price for dairy products per pound, butter	20c.
No. of males employed, farm work	190
Average number hours employed per day	12
Average number days employed per year	200
Average wages paid per month	$25
No. of males employed in saw mills	55
Average number of hours employed yer day	10
Average number of days employed per year	300
Average wages paid per month	$35
No. of males employed in manufacturing enterprises, skilled labor	200
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$80
No. of males employed, common labor, other than manufacturing	230
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed in clerical positions	107
Average number of hours employed per day	10

Average number of days employed per year	300
Average wages paid per month	$75
No. of females employed in clerical positions	6
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$60
No. of females employed as domestics	127
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$15
No. of mechanics employed in building trades, brick masons	20
Average number of hours employed per day	10
Average number of days employed per year	180
Average wages paid per day	$5
No. of mechanics employed in building trades, plasterers	15
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per day	$5
No. of mechanics employed in building trades, carpenters	140
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per day	$2 50
No. of saw mills in operation	6
Daily capacity of same	75,000 ft.
Average actual daily output of same	20,000 ft.
Amount of capital invested therein	$18,000
No. of flour mills in operation	3
Daily capacity of same	620 bbls.
Average daily output	525 bbls.
Amount of capital invested	$100,000
Total output for 1895	160,500 bbls.
Quantity of product consumed in state	99,000 bbls.
Quantity of product exported from state	61,500 bbls.
No. of breweries in operation	2
Daily capacity of same	41 bbls.
Total output for 1895	2,850 bbls.
Amount of capital invested	$3,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,850	1,753	3,603
No. of children enrolled in public schools	1,579	1,501	3,080
Average daily attendance	957	928	1,885
No. of children over 6 years of age not enrolled in any school during year	288	275	563
No. of children between 8 and 15 years of age attending school less than three months during year	132	114	246
No. of teachers employed during year	55	110	165
No. of teachers employed in private schools during year	3	5	8

Average monthly salary paid male teacher during year	$44 16
Average monthly salary paid female teacher during year	$38 59
Estimated value of school houses, including grounds	$68,356 00
Estimated value of school furniture	$13,754 00
Estimated value of apparatus, maps, charts, etc	$3,932 00
Estimated value of libraries	$265 00
Total value of all school property	$86,307 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$15,560 00
Amount of school district bonds outstanding at close of school year	$37,025 00
Average number of days school was maintained during year	104
No. of school districts in county	99

No. of graded schools in county	5
No of private schools taught in county during year	8
No. of school houses built during year	11
No. of school houses now in county	95
Total seating capacity of all school houses in county	3,789
No. of districts in county not supplied with school houses	4

MASON COUNTY.

Mason county was organized by the first territorial legislature of 1854, as Suwamish, and later named after the first secretary of the territory. It contains about 900 square miles of territory, covering the southwestern arms of Puget Sound. It is a well timbered section, and has been logged continuously for over thirty years. Although Mason county was the pioneer of logging, and of recent years great inroads have been made in its timber wealth, it is estimated that enough of this resource remains to furnish logs for another thirty years. Practically nothing but the fir timber has been cut, and the cedar timber, which is everywhere abundant, has not been disturbed, so when the call for that class of lumber comes, Mason county has almost unlimited quantities.

On its mountains, hills, and in its valleys are found all of the hard woods indigenous to Western Washington, and these woods remain to be called for by the future demands of trade or manufacture. Several townships in the Satsop and Wynoochie valleys have been visited by cruisers and hunters and are reported wonderfully timbered. In a recent contest over a quarter section of 160 acres, several experienced cruisers testified it contained 12,000,000 feet of good fir timber, while half this amount is considered an exceptionally good claim. While such estimates are largely a matter of "guess work," there is no doubt of the wonderful growth. Its three large logging railroads are being rapidly extended into the western section of the county, and one, at least, will eventually reach the Pacific coast.

Mason county includes all classes of lands within its borders, but until the past few years little attention was given to agricultural pursuits, and its development in that respect has been slow. Now the farms are being enlarged and opened up all over the county, and the acreage under cultivation largely increased. For the supply of the numerous logging camps large quantities of produce are shipped into the county, but these conditions will soon be changed, judging from the increasing interest in farming. With a good local market for produce the farming classes have every incentive for increased production.

Hay, the principal product, yields a good crop, cutting from two to four tons to the acre. Potatoes and all roots and vegetables produce immense crops. Wheat and oats give good returns. Dairying affords a good opening for money making, and the raising of stock is also profitable, as cattle can range throughout the year, and require but a month or so of feeding in the winter. Hogs and sheep are also easily kept and profitable.

In fruit raising, however, the greatest interest is being taken. Every farmer has his orchard. A large acreage of first-class fruit is beginning to bear. Winter apples probably lead, but the acreage of prunes and plums is quite extensive. A small export trade in apples, tomatoes and small fruits was done during the year 1895, and will increase each year.

The desirable agricultural land, except remote from settlement, has been taken up, but large quantities of fine bottom and middle lands, which have been logged off and partly cleared, and also lands in the natural state, are available at reasonable prices and good terms.

Mason county is the home of the famous "Olympia oysters," the weekly shipments in season reaching 250 sacks, which bring about $2.50 per sack. This industry employs a large force of men in cultivating and gathering the oysters. Clams are abundant in the bays, and large quantities are shipped throughout the year. The waters abound with all kinds of fish, which are smoked, salted, or shipped to market fresh.

Little mining is done in the county, although traces of gold, silver, iron, copper and coal have been found and some development done in various places.

The county seat of Mason county is Shelton, a thriving town of about 900 population. It is the terminus of two large logging railroads, the Peninsular, and the Shelton & Southwestern, both of which are substantial standard gauge roads and well equipped. They have about 40 miles of main line and spurs.

No. of acres land in county	614,880
No. of acres land taken up under various laws, including grants and reservations	480,000
No. of acres land remaining to be taken up under laws of the United States	134,880

No. of acres granted lands for sale by the State of Washington	50,647
No. of acres granted lands for sale by Northern Pacific R. R. Co	69,943
No. of farms	274
No. of acres upland	172,177
No. of acres bottom land	73,414
No. of acres timber land	223,455
No. of acres prairie land	490
No. of acres under cultivation	2,323
No. of acres oats	125
Average yield per acre	50 bush.
No. of acres hay	838
Average yield per acre	2 tons.
No. of acres potatoes	1,155
Average yield per acre	100 bush.
No. of acres fruit	150
No. of acres other products	200
No. of pounds of wool produced	1,000
No. of dairies	6
No. of cows furnishing milk therefor	50
Average price for dairy products per lb., butter	25c.
Amount of capital invested in dairies	$2,000
No. of males employed, farm work	50
Average number of hours employed per day	10
Average number of days employed per year	182
Average wages paid per month	$26
No. of males employed in logging camps	650
Average number of hours employed per day	11
Average number of days employed per year	216
Average wages paid per month	$40
No. of males employed in saw mills	25
Average number of hours employed per day	10
Average number of days employed per year	190
Average wages paid per month	$30
No. of males employed in manufacturing enterprises, skilled labor	16
Average number of hours employed per day	10
Average number of days employed per year	216
Average wages paid per month	$75
No. of males employed in clerical positions	8
Average number of hours employed per day	10
Average number of days employed per year	182
Average wages paid per month	$50
No. of females employed in clerical positions	3
Average number of hours employed per day	10
Average number of days employed per year	182
Average wages paid per month	$40
No. of females employed as domestics	50
Average number of hours employed per day	12
Average number of days employed per year	250
Average wages paid per month	$15
No. mechanics employed in building trades, carpenters	45
Average number of hours employed per day	8
Average number of days employed per year	130
Average wages paid per month	$65
No. of saw mills in operation	3
Daily capacity of same	25,000 ft.
Average actual daily output of same	15,000 ft.
Amount of capital invested therein	$10,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	493	478	971
No. of children enrolled in public schools	343	339	682

	Male.	*Fem.*	*Total.*
Average daily attendance	227	144	371
No. of children over 6 years of age not enrolled in any school during year	72	52	124
No. of children between 8 and 15 years of age attending school less than three months during year	40	30	70
No. of teachers employed during year	17	25	42
No. of teachers employed in private schools during year	1	4	5

Average monthly salary paid male teacher during year	$48 98
Average monthly salary paid female teacher during year	$46 30
Estimated value of school houses, including grounds	$22,918 00
Estimated value of school furniture	$3,611 00
Estimated value of apparatus, including maps, charts, etc	$1,944 00
Estimated value of libraries	$140 00
Total value of all school property	$28,613 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$6,005 46
Amount of school district bonds outstanding at close of school year	$11,100 00
Average number of days school was maintained during year	97
No. of school districts in county	31
No. of graded schools in county	1
No. of private schools taught in county during year	4
No. of school houses built during year	2
No. of school houses now in county	29
Total seating capacity of all school houses in county	1,084
No. of districts in county not supplied with school houses	4

OKANOGAN COUNTY.

Okanogan county is bounded on the south by Lincoln, Douglas and Kittitas counties, on the west by Snohomish, Skagit and Whatcom counties, on the north by British Columbia and on the east by Stevens county. It can be reached by stages or steamers from Wenatchee, the nearest railroad station on the Great Northern Railway, or by stages from Coulee City, the nearest railroad station on the Central Washington Railway.

Its main valleys, notably the Wenatchee, Entiat, Chelan, Methow and Okanogan, are narrow but very fertile, producing in great abundance nearly all kinds of fruits, vegetables and cereals. Most of the surface of the county is mountainous, however, and chiefly valuable for its mineral, timber and stock ranges. It is estimated that there are about 700,000 acres of tillable lands in the county, that is, including fruit lands, and only about 400 ranchers or agriculturists.

Profitable fruit culture is no longer an experiment in Okanogan county. Orchards have been planted in every portion and have in every instance proved a success far beyond the expectation of the planter. Varieties hitherto unknown in this latitude are now grown in the greatest perfection. Therefore, when the extent of territory adapted to fruit culture is considered, the favorable soil conditions, the genial climate, the variety and quality of the fruit grown, no one will doubt the ultimate proof of the assertion that Okanogan county is destined to stand in the front rank of the fruit producing counties of the state.

The mountains afford all the timber needed for development in all lines of industry. The first in the list of varieties and the most abundant is bull pine which grows very large and of rather a coarse hard grain. It is not confined to any locality, but grows in valleys, along water courses, lake shores and mountain slopes. The next in quantity and of more value is a variety called yellow pine. Its habits are very similar to the bull pine but it is much better in quality. The bark is quite thin and smooth, sap light, and very suitable for building purposes. Fir, cedar, cottonwood, tamarack and spruce are also plentiful.

Its mineral deposits are stupendous in quantity and diversified as to kinds, producing gold, silver, copper, lead and nickel.

Conconully is the county seat. Population of the county is about 3,000.

No. of acres land in county	4,627,250
No. of acres land taken up under various laws, including grants and reservations	1,575,000
No. of acres land remaining to be taken up under laws of the United States	3,052,250
No. of acres granted lands for sale by the State of Washington	60,129
No. of acres granted lands for sale by Northern Pacific Railroad Co	59,818
No. of farms	398
No. of acres upland	30,000
No. of acres bottom land	10,000
No. of acres prairie land	20,000
No. of acres coal land	5,000
No. of acres mineral land	4,000
No. of acres under cultivation	30,000
No. of acres irrigated	10,000
No. of miles of irrigating ditches	120
No. of acres wheat	5,000
Average yield per acre	30 bush.
No. of acres oats	5,000
Average yield per acre	40 bush.
No. of acres barley	5,000
Average yield per acre	25 bush.
No. of acres corn	1,000
Average yield per acre	100 bush.
No. of acres hops	20
Average yield per acre	1,100 lbs.
No. of acres sugar beets	100
Average yield per acre	2 tons.
No. of acres potatoes	600

Average yield per acre	100 bush.
No. of acres fruit	1,200
No of acres other products	12,000
No. of pounds of wool produced	5,000
No. males employed, farm work	60
Average number hours employed per day	12
Average number days employed per year	200
Average wages paid per month	$25
No. of males employed in logging camps	25
Average number hours employed per day	10
Average number days employed per year	100
Average wages paid per month	$40
No. of males employed in saw mills	20
Average number hours employed per day	10
Average number days employed per year	100
Average wages paid per month	$40
No. of males employed in clerical positions	20
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of females employed as domestics	25
Average number of hours employed per day	12
Average number of days employed per year	200
Average wages paid per month	$20
No. of mechanics employed in building trades, carpenters	20
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$75
No. of saw mills in operation	3
Daily capacity of same	25,000 ft.
Average actual daily output of same	15,000 ft.
Amount of capital invested therein	$5,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	505	473	978
No. of children enrolled in public schools	298	305	603
Average daily attendance	210	208	418
No. of children over 6 years of age not enrolled in any school during year	165	129	294
No. of children between 8 and 15 years of age attending school less than three months during year	77	67	144
No. of teachers employed during year	8	26	34
No. of teachers employed in private schools during year	......	2	2

Average monthly salary paid male teacher during year	$51 60
Average monthly salary paid female teacher during year	$40 18
Estimated value of school houses, including grounds	$20,930 00
Estimated value of school furniture	$2,260 00
Estimated value of apparatus, including maps, charts, etc	$590 00
Estimated value of libraries	$65 00
Total value of all school property	$23,845 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$5,202 42
Amount of school district bonds outstanding at close of school year	$18,800 00
Average number of days school was maintained during year	76
No. of school districts in county	30
No. of graded schools in county	1
No. of private schools taught in county during year	2
No. of school houses built during year	2
No. of school houses now in county	21
Total seating capacity of all school houses in county	739
No. of districts in county not supplied with school houses	9

PACIFIC COUNTY.

Pacific county is the southwestern extreme of the state, bounded on the north by Chehalis county, on the east by Lewis county, on the south by Wahkiakum county and the Columbia river, and on the west by the Pacific ocean. Along the western line is a narrow peninsula, running north from the Columbia river, enclosing Willapa Bay, into which flow nine rivers, most of them being tidal streams, and along whose shores are forests of timber unsurpassed in quantity and quality. The soil in the valleys of the streams indicated is very rich, and produces in abundance all the fruits and vegetables common to the western part of the state, and is especially adapted to hop culture and dairying.

Willapa Bay has many thousand acres devoted to and capable of oyster culture. The principal market is San Francisco, California, to which place a steamer load is shipped fortnightly during the season. The recent endeavors of the general government to propagate eastern oysters in these waters has been pronounced successful. Bay Centre, a town of about 200 souls, is the headquarters for this valuable industry.

Besides the salmon caught in the Willapa harbor and on the Columbia river for the canneries in this county, thousands of tons are caught within the confines of the county and delivered at the preserving establishments at Astoria, Oregon.

The whole land area above tide line was primarily heavily timbered, and only along the streams of the principal valleys has the settler made any advance in clearing for cultivation. The timber consists largely of fir, spruce, cedar and hemlock. It is estimated that there is standing within the county 16,000,000,000 feet of good merchantable timber, nearly all of which is accessible by the ordinary process of handling.

Successful cranberry culture is carried on more extensively on the peninsula in the vicinity of Long Beach than elsewhere in the northwest. During the past year many acres in the Willapa valley have been devoted to hop culture. This has passed the experimental stage and is now regarded as one of the permanent industries.

South Bend is the county seat, and the center of the lumbering industry. The other towns are Ilwaco, on the Columbia river and the chief center of the fishing industry, Knappton, on the Columbia river, Sunshine, on Willapa Bay, Frances and Lebam, new towns on the Northern Pacific Railroad.

The Northern Pacific Railroad touches tide water at South Bend, and provides all needful facilities for transportation to and from interior points at terminal rates. Have direct steamer service with San Francisco, California, and daily steamers to all harbor points.

No. of acres land in county	538,500
No. of acres land taken up under various laws, including grants and reservations	446,611
No. of acres land remaining to be taken up under laws of the United States	91,889
No. of acres granted lands for sale by the State of Washington	38,076
No. of acres granted lands for sale by Northern Pacific R. R. Co	133,399
No. of farms	220
No. of acres upland	440,000
No. of acres bottom land	151,000
No. of acres timber land	414,000
No. of acres under cultivation	10,000
No. of acres wheat	100
Average yield per acre	50 bush.
No. of acres oats	5,000
Average yield per acre	70 bush.
No. of acres hay	4,000
Average yield per acre	3 tons.
No. of acres cranberries	35
Average yield per acre	30 bbls.
Average price per barrel	$9
No. of acres potatoes	200
Average yield per acre	300 bush.
No. of acres fruit	300
No. of acres other products	365
No. of pounds of wool produced	2,750
No. of dairies	15
No. of cows furnishing milk therefor	304
Average product per year, butter	59,740 lbs.
Average price for dairy products per pound, butter	25c.
Amount of capital invested in dairies	$12,000
No. of males employed, farm work	400
Average number of hours employed per day	14
Average number of days employed per year	300
Average wages paid per month	$25
No. of males employed in logging camps	1,000
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed in saw mills	220
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$50
No. of males employed in manufacturing enterprises, skilled labor	200
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$60
No. of males employed in manufacturing enterprises, common labor	1,000
Average number of hours employed per day	10
Average number of days employed per year	225

Average wages paid per month	$42
No. of males employed in clerical positions	490
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$75
No. of females employed in clerical positions	25
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$30
No. of females employed as domestics	240
Average number of hours employed per day	14
Average number of days employed per year	300
Average wages paid per month	$12
No. of mechanics employed in building trades, stone cutters	10
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$70
No. of mechanics employed in building trades, carpenters	95
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per day	$3
No. of saw mills in operation	7
Daily capacity of same	255,000 ft.
Average actual daily output of same	240,000 ft.
Amount of capital invested therein	$260,000
No. of shingle mills in operation	4
Daily capacity of same	200,000
Average daily output	155,000
Amount of capital invested	$20,000
Total output of lumber, 1895	41,000,000 ft.
Total output of shingles, 1895	14,500,000
Value of all	$259,050
No. of cargoes of lumber shipped by water	73
No. of feet of lumber shipped by water	37,000,000
No. of feet of lumber shipped by rail	1,200,000
No. of shingles shipped	14,500,000
No. of canneries in operation	4
Daily capacity of same	30,000 cases.
Amount of capital invested	$150,000
Total output for 1895	73,284 cases.
Value of same	$371,183
No. of sacks of oysters shipped	44,000
Value of same	$66,500
Value of clams and crabs shipped	$1,000
No. of fishermen in county	680
No. of tons fresh fish shipped	75
Value of same	$3,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	918	846	1,764
No. of children enrolled in public schools	627	629	1,256
Average daily attendance	473	448	921
No. of children between 8 and 15 years of age attending school less than three months during year	53	54	107
No. of teachers employed during year	24	27	51
No. of teachers employed in private schools during year	4	6	10

Average monthly salary paid male teacher during year	$50 34
Average monthly salary paid female teacher during year	$42 45
Estimated value of school houses, including grounds	$45,340 00
Estimated value of school furniture	$6,715 00

Estimated value of apparatus, including maps, charts, etc	$1,733 00
Estimated value of libraries	$175 00
Total value of all school property	$53,963 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$9,281 34
Amount of school district bonds outstanding at close of school year	$35,450 00
Average number of days school was maintained during year	96
No. of school districts in county	38
No. of graded schools in county	3
No. of private schools taught in county during year	10
No. of school houses built during year	None.
No. of school houses now in county	35
Total seating capacity of all school houses in county	1,840
No. of districts in county not supplied with school houses	3

PIERCE COUNTY.

This county was established by an act of the Oregon legislature December 22, 1852, being at that time a portion of the State of Oregon. It embraces an area of 1,800 square miles and had an estimated population in 1895 of 75,000.

The first permanent settlement by white men in the Puget Sound region was made within the boundaries of this county in 1833, when Lieutenant Kittson, then acting as clerk in the service of the Hudson's Bay Company, erected for that company Fort Nisqually on a tract of land three-fourths of a mile back from the Sound on the south side of Sisqualitchew creek. Afterward, in 1849, a little farther back from the Sound, Fort Steilacoom was established by Captain Bennett H. Hill's company, belonging to the first regiment U. S. A. artillery, on the site now occupied by the state insane asylum.

A large portion of the surface of Pierce county is heavily timbered, but there is a large area of rich agricultural land in the river valleys and bottoms. The western portion of the county borders largely on Puget Sound, while the eastern boundary line extends to the summit of the Cascade range of mountains. The number of acres of standing timber is estimated to be 668,400, and the number of feet of standing timber 15,205,000,000, valued at $10,000,000. It consists of fir, Alaska pine, spruce, cedar, maple, alder, ash, cottonwood, larch and oak in quantities, and a variety of other woods in lesser amounts. The finish and quality of these woods is equal to any found in the United States, and a recent test of the comparative merits of Washington fir as compared with eastern oak made at the Northern Pacific car shops at South Tacoma by taking ten pieces each of green fir and oak and straining them until each piece was broken, showed 110 pounds in favor of fir, while a trial of seasoned oak and fir in the same manner showed 685 pounds per stick in favor of fir. Many cars are now being built at the shops out of the native fir, and it is also coming into general use as a finishing lumber for residences and business blocks.

Practically inexhaustible coal deposits lie within the limits of Pierce county and within thirty miles of Tacoma, the county seat, which is on tide water. The principal mines now being developed and worked in this county are the Carbon Hill, with an annual output of 300,000 tons, the Wilkeson, 90,000 tons, South Prairie, 60,000 tons. These mines are situated at an elevation of 1,000 feet, making an easy grade down to tide water, trains of 50 to 75 cars being easily handled. The coal is bituminous and semi-bituminous, making 66 to 68 per centum of coke. The veins are numerous, varying in thickness from 6 to 10 feet, with from 2 to 6 feet of pure coal. Coke is manufactured in large quantities by the Wilkeson Coal and Coke Company and disposed of mostly to the Tacoma smelter.

Stone, of a very fine quality for building purposes, is found near Wilkeson. It is sandstone, varying in color from white to a yellowish gray, and is much used in the erection of business buildings.

Such a thing as the failure of a crop has never been known in this county. The acres of agricultural land which lie in the river valleys are susceptible of a high state of cultivation. The chief natural resources of the county are timber and coal, but fruit, vegetables, hops, cereals and grasses are produced in perfection. The prairies are dotted with fresh water lakes, while the surface is covered with clusters of young fir, cedar, pine and scrub oak, presenting an inviting and picturesque appearance. Apples, plums and prunes are produced in abundance, and small fruits, such as raspberries and strawberries, produce from 3,000 to 5,000 pounds to the acre; a ready market is found in the cities on the Sound as well as in the eastern states. Hops formerly were the principal crop produced in the Puyallup valley, but owing to a long period of low prices and the appearance of vermin among the vines, many farmers have plowed up their fields and have adopted diversified farming, proving in every instance to be more profitable. Many of the farmers in this county are holding more land than they can properly handle and profitably cultivate, and prospective settlers are invited to correspond with the Pierce county immigration association of Tacoma, an auxiliary to the Washington state immigration association, for information regarding such lands and prices. The dairy interest is one which is receiving much attention from Pierce county farmers because of the ease with which stock is maintained in a country where frost is little known and grass is green the year round. Creameries are springing up in all directions, and in view of the great demand for condensed milk in Japan (hundreds of cases are sent there by every steamer, all manufactured in New York), a field for successful enterprise is open in that direction, while an enterprising man might also build up a fine business by putting in a cannery for fruits and vegetables, there being no such institution in the state.

Pierce county is well supplied with schools, churches, seminaries and other educational institutions. It is traversed by the Northern Pacific Railroad and its branches in all directions, and the facilities for reaching the markets, both by rail and wagon road, are of the very best.

Tacoma, the principal city and county seat of Pierce county, is the legal western terminus of the Northern Pacific Railroad, and here are located the terminal improvements of that great transcontinental system which have cost more than eight million dollars, including the car shops at South Tacoma, which have a capacity to employ 1,800 men. Tacoma was selected as the terminus of the Northern Pacific in 1873. It was then a village surrounding a saw mill, and when the government census was taken in 1880 there were 1,098 souls in the place. At the end of a decade 36,006 were found by the government census takers of 1890, an increase of 3,179.23 per cent., and the estimated population is to-day 50,000. From an insignificant saw mill town it has become a metropolitan city, having steamship connections with all parts of Puget Sound and Alaska, and also with San Francisco, California, the Central American republics, and Japan and China. It carries on an enormous traffic with the Asiatic countries in teas, silks and rice. It is also the headquarters of the state grain inspector, and cargoes of wheat and flour are brought almost daily under his supervision. Having a warehouse and elevator capacity of 3,500,000 bushels, grain buyers and shippers find here all the facilities for satisfactorily handling the cereal products of the State of Washington, more than 75 per cent. of the exports from Puget Sound leaving the port of Tacoma annually. Fully 75 per cent. of the tea crop brought into the United States comes to Tacoma *via* the Northern Pacific Steamship line from Yokohama and Hongkong.

A floating dry dock capable of handling the largest size vessels is in successful operation at Tacoma, and represents an investment of $300,000. It is used principally by vessels which have come into port from long cruises before loading grain. It is also used to some extent by the United States government.

The enviable importance of the industrial and commercial present of Tacoma is well told in tabular statements appearing elsewhere within these covers.

No. of coal mines in operation	6
No. of employes	1,020
No. of days employed annually	270
No. of hours employed per day	8
Wages paid per day	$2 50
Total product per year, tons	444,036
No. of acres land in county	1,002,520
No. of acres land taken up under various laws, including grants and reservations	893,687
No. of acres land remaining to be taken up under laws of the United States	108,833
No. of acres granted lands for sale by the State of Washington	77,135
No. of acres granted lands for sale by the Northern Pacific Railroad Co	98,913
No. of farms	1,327
No. of acres upland	525,503
No. of acres bottom land	47,462
No. of acres timber land	367,689
No. of acres prairie land	51,892
No. of acres coal land	23,200
No. of acres mineral land	384
No. of acres under cultivation	28,942
No. of acres irrigated	250
No. of acres wheat	787
Average yield per acre	25 bush.
No. of acres oats	3,067
Average yield per acre	42 bush.
No. of acres barley	125
Average yield per acre	45 bush.
No. of acres corn	22
Average yield per acre	43 bush.
No. of acres hops	3,660
Average yield per acre	1,488 lbs.
No. of acres sugar beets	5
Average yield per acre	30,000 lbs.
No. of acres potatoes	1,630
Average yield per acre	178 bush.
No. of acres fruit, not bearing	1,210
No. of acres fruit, bearing	1,068
No. of acres other products	17,398
No. of pounds of wool produced	5,445
No. of dairies	117

No. of cows furnishing milk therefor	2,459
Amount of capital invested in dairies	$119,621
No. of males employed, farm work	662
Average number of hours employed per day	10
Average number of days employed per year	267
Average wages paid per month	$21
No. of males employed in logging camps	342
Average number of hours employed per day	10
Average number of days employed per year	237
Average wages paid per month	$42
No. of males employed in saw mills	770
Average number of hours employed per day	10
Average number of days employed per year	253
Average wages paid per month	$46
No. of males employed in manufacturing enterprises, skilled labor	990
Average number of hours employed per day	10
Average number of days employed per year	303
Average wages paid per month	$68
No. of males employed in manufacturing enterprises, common labor	1,458
Average number of hours employed per day	10
Average number of days employed per year	281
Average wages paid per month	$53
No. of males employed, common labor, other than manufacturing	2,111
Average number of hours employed per day	10
Average number of days employed per year	283
Average wages paid per month	$51
No. of males employed in clerical positions	1,559
Average number of hours employed per day	9
Average number of days employed per year	298
Average wages paid per month	$71
No. of females employed in clerical positions	277
Average number of hours employed per day	9
Average number of days employed per year	296
Average wages paid per month	$43
No. of females employed in manufacturing enterprises	180
Average number of hours employed per day	9
Average number of days employed per year	292
Average wages paid per month	$31
No. of females employed as domestics	1,092
Average number of hours employed per day	11
Average number of days employed per year	339
Average wages paid per month	$16
No. of mechanics employed in building trades, stone cutters	30
Average number of hours employed per day	8
Average number of days employed per year	253
Average wages paid per month	$76
No. of mechanics employed in building trades, brick masons	53
Average number of hours employed per day	9
Average number of days employed per year	139
Average wages paid per month	$87
No. of mechanics employed in building trades, plasterers	42
Average number of hours employed per day	9
Average number of days employed per year	85
Average wages paid per month	$74
No. of mechanics employed in building trades, carpenters	137
Average number of hours employed per day	9
Average number of days employed per year	213
Average wages paid per month	$60
No. of saw mills in operation	11
Daily capacity of same	740,000 ft.

Average actual daily output of same	625,000 ft.
Amount of capital invested therein	$1,250,000
No. of shingle mills in operation	15
Daily capacity of same	1,200,000
Average daily output	900,000
Amount of capital invested	$80,000
No. of other wood working factories	6
Amount of capital invested	$110,000
Total output of saw mills, 1895	187,500,000 ft.
Total output of shingle mills, 1895	270,000,000
No. of feet of lumber shipped by water	84,438,090
No. of feet of lumber shipped by rail	25,000,000
No. of shingles shipped	270,000,000
No. of pounds of fresh fish shipped	5,484,500
Value of same	$30,000
No. of fishermen employed	200
No. of flour and cereal mills in operation	5
Daily capacity of same	1,200 bbls.
Average daily output	1,100 bbls.
Amount of capital invested	$335,000
Total output for 1895	338,000 bbls.
Quantity of product consumed in state	38,000 bbls.
Quantity of product exported from state	300,000 bbls.
No. of soap works in operation	2
Monthly production of same	120,000 lbs.
Amount of capital invested	$20,000
Total output for 1895	200,000 lbs.
Quantity of product consumed in state	130,000 lbs.
Quantity of product exported from state	70,000 lbs.
No. of breweries in operation	3
Daily capacity of same	260 bbls.
Amount of capital invested	$385,000
Total output for 1895	52,000 bbls.
No. of brick yards in operation	2
Amount of capital invested	$120,000

IMPORTS.

23 cargoes oriental merchandise, value	$17,711,630 84

EXPORTS.

3,385,292 bushels wheat, value	$1,507,953 15
295,938 barrels flour	708,007 80
94,056,689 feet lumber	870,201 33
319,105 tons coal	973,928 00
Merchandise to Japan and China, exclusive of flour	441,573 77
Merchandise to British Columbia	131,725 73
Total	$4,633,389 78

Inward registered tonnage	601,707
Outward registered tonnage	551,506
Inward cargo tonnage	102,516
Outward cargo tonnage	652,187
Deep sea arrivals	417
Match factory in operation	1
Daily capacity of same	500 gross.
Amount of capital invested	$100,000
Total output for 1895	125,000 gross.
Quantity consumed in state	5,000 gross.
Quantity exported from state	120,000 gross.

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	6,920	7,006	13,926
No. of children enrolled in public schools	4,516	4,425	8,941
Average daily attendance	3,500	3,486	6,986

	Male.	*Fem.*	*Total.*
No. of children over 6 years of age not enrolled in any school during year	975	892	1,867
No. of children between 8 and 15 years attending school less than three months during year	447	292	739
No. of teachers employed during year	56	204	260

Average monthly salary paid male teacher during year	$54 83
Average monthly salary paid female teacher during year	$41 10
Estimated value of school houses, including grounds	$840,335 00
Estimated value of furniture	$56,810 00
Estimated value of apparatus, including maps, charts, etc	$9,710 00
Estimated value of libraries	$3,365 00
Total value of all school property	$910,220 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$138,363 53
Amount of school district bonds outstanding at close of school year	$411,845 00
Average number of days school was maintained during year	116
No. of school districts in county	82
No. of graded schools in county	6
No. of private schools taught in county during year	14
No. of school houses built during year	1
No. of school houses now in county	103
Total seating capacity of all school houses in county	11,261
No. of districts in county not supplied with school houses	None.

STATEMENT OF ORE RECEIVED AT THE TACOMA SMELTER DURING 1895.

Months.	*Gross weight.*	*Total contents.*		
		Ozs. gold.	Ozs. silver.	Lbs. lead.
January	1,560,883	1,354.86	24,964.96	282,321
February	3,956,144	1,534.03	21,253.78	132,196
March	1,950,696	1,568.55	25,323.83	346,006
April	1,515,254	1,248.09	28,419.27	215,315
May	2,618,059	1,649.39	33,815.59	382,837
June	2,483,898	2,143.56	16,060.27	175,820
July	2,249,194	1,096.30	45,353.87	318,472
August	4,336,220	721.23	30,483.64	754,242
September	2,560,494	871.80	35,769.87	852,955
October	3,399,570	2,166.97	24,754.49	296,726
November	3,682,332	1,934.43	35,076.72	546,302
December*	3,700,000	2,000.00	35,000.00	550,000
	34,012,746	18,289.21	356,226.29	4,853,194

*Estimated for December.

STATEMENT OF OUTPUT OF THE TACOMA SMELTER FOR YEAR 1895.

Months.	*No. bars.*	*Weight.*	*Ozs. gold.*	*Ozs. silver.*	*Lbs. lead.*	*Lbs. copper.*	*Total value.*	*Pay roll.*
January	4,000	412,884	2,059.40	46,238.62	448,167	72,174	$90,724 55	$5,860 16
February	2,000	205,577	1,186.81	27,089.05	229,532	41,680	51,687 73	5,019 16
March	2,400	247,817	1,572.50	22,370.25	257,274	28,740	57,138 05	5,362 96
April	2,200	227,508	1,315.04	21,959.61	225,913	....	48,449 45	5,007 31
May	3,600	369,178	1,862.12	39,173.82	336,364	....	76,002 17	6,014 06
June	2,200	225,600	1,263.86	25,456.09	233,857	23,315	52,702 51	5,464 86
July	2,000	204,704	1,175.45	32,056.55	202,423	....	52,192 90	5,506 31
August	2,800	286,471	1,660.01	28,510.83	284,404	....	62,942 08	5,867 56
September	2,800	287,237	1,121.60	24,018.46	285,513	....	48,412 27	5,772 56
October	4,000	411,191	1,710.36	33,761.30	408,762	....	71,018 02	6,361 31
November	3,200	327,983	1,175.58	27,090.37	326,026	....	52,882 62	5,852 86
December	7,100	730,185	1,663.28	58,644.55	726,065	....	96,396 27	6,183 11
	38,300	3,936,335	17,766.01	386,369.50	3,994,300	165,909	$760,548 57	$68,272 22

SAN JUAN COUNTY.

San Juan county is situated in the northwestern part of the state, and is composed entirely of islands lying within Puget Sound. The principal islands are San Juan, Orcas, Lopez, Shaw, Waldron, Blakeley and Decatur, together with a number of smaller islands. These islands have been settled for more than thirty-five years. San Juan island was at one time the bone of contention between England and the United States, but the dispute was finally settled in favor of the United States government.

The soil in the valleys is what is known as beaver and alder bottom lands. Oats, wheat, barley, rye, potatoes, timothy and clover grow in perfection and yield largely. Owing to the gentle spring rains, timothy and clover yield immensely when compared with the eastern states; it is not unusual that a yield of three to five tons to the acre is had.

Dairying is profitable, and owing to the mild winters cows give the most milk in the fall, winter and spring. Farmers who have turned their attention in this direction have been very successful. The great quantity of eggs and poultry shipped from the islands embraced within San Juan county speaks volumes for the poultry industry, and yet this industry is only in its infancy.

Fruits of all kinds thrive here. Apples, pears, cherries, plums, prunes, strawberries and blackberries grow in perfection and in profusion.

At Roche Harbor, on San Juan island, is located the Roche Harbor Lime Works, having a capacity of 1,500 barrels per day. The lime rock is 98 per cent. pure lime and is found in unlimited quantities, and with it a large quantity of marble susceptible of the highest polish. This industry has been in continual operation during the past year; in fact, it is one of the few industrial institutions of the country that have escaped at least partial paralysis through the depression of recent years. A large part of the product of the lime works, in fact most of it, is exported.

A staveless barrel factory, having a daily capacity of 4,000 barrels, is a kindred industry located at Roche Harbor, under the management of the company operating the lime works.

Friday Harbor, a beautiful village on San Juan island, is the county seat.

No. of acres land in county	101,000
No. of acres land taken up under various laws, including grants and reservations	97,844
No. of acres land remaining to be taken up under laws of the United States	3,156
No. of acres granted lands for sale by the State of Washington	3,834
No. of farms	450
No. of acres bottom land	3,000
No. of acres under cultivation	8,590
No. of acres wheat	400
Average yield per acre	25 bush.
No. of acres oats	1,200
Average yield per acre	60 bush.
No. acres hops	30
Average yield per acre	1,500 lbs.
No. of acres potatoes	200
Average yield per acre	160 bush.
No. of acres fruit	1,000
No. of acres other products	5,760
No. of pounds of wool produced	21,770
No. of males employed in logging camps	40
Average number of hours employed per day	10
Average number of days employed per year	160
Average wages paid per month	$40
No. of males employed in saw mills	40
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$25
No. of males employed in manufacturing enterprises, skilled labor	40
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$70
No. of males employed in manufacturing enterprises, common labor	150
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed in clerical positions	8
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$55
No. of females employed as domestics	15
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$15
No. of mechanics employed in building trades, carpenters	15
Average number of hours employed per day	10
Average number of days employed per year	160
Average wages paid per month	$65
No. of saw mills in operation	5
Daily capacity of same	25,000 ft.
Average actual daily output of same	10,000 ft.
Amount of capital invested therein	$30,000
Lime works in operation	1
Amount of capital invested	$400,000
Daily capacity of same, lime	1,500 bbls.
Total product for 1895, lime	78,066 bbls.
Quantity of product consumed in state, lime	15,118 bbls.
Quantity of product exported from state, lime	62,948 bbls.
Staveless barrel factory in operation	1
Amount of capital invested	$250,000
Daily capacity of same	4,000 bbls.

Total product for 1895	125,000 bbls.
Quantity of product consumed in state	122,200 bbls.
Quantity of product exported from state	2,800 bbls.
Salmon cannery in operation	1
Amount of capital invested	$40,000
Daily capacity of same	800 cases.
Total output for 1895	25,000 cases.

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	458	465	923
Number of children enrolled in public schools	330	332	662
Average daily attendance	204	229	433
No. of children over 6 years of age not enrolled in any school during year	77	79	156
No. of children between 8 and 15 years of age attending school less than three months during year	44	39	83
No. of teachers employed during year	11	22	33
No. of teachers employed in private schools during year	......	2	2

Average monthly salary paid male teacher during year	$45 10
Average monthly salary paid female teacher during year	$38 94
Estimated value of school houses, including grounds	$11,335 00
Estimated value of school furniture	$2,390 00
Estimated value of apparatus, including maps, charts, etc	$818 00
Total value of all school property	$14,543 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$379 00
Amount of school district bonds outstanding at close of school year	$4,600 00
Average number of days school was maintained during year	98
No. of school districts in county	22
No. of graded schools in county	None.
No. of private schools taught in county during year	2
No. of school houses built during year	2
No. of school houses now in county	20
Total seating capacity of all school houses in county	1,043
No. of districts in county not supplied with school houses	2

SKAGIT COUNTY.

From the organization of Washington Territory till November 28, 1883, the area now known as Skagit county formed the southern portion of Whatcom. On the date mentioned Skagit county was created by legislative enactment. The county is 24 miles wide, north to south, and approximately 100 miles long. Her eastern border is the snow-capped summit of Cascade range, while her western shores are washed by the ever-recurring tides of Puget Sound. The 9th standard parallel separates this county from Whatcom, north, and the 8th marks the division from Snohomish on the south. The area of land is about 18,000 square miles, or 1,171,000 acres.

Skagit river, the largest emptying into Puget Sound, rising in British Columbia, courses a mountainous region through Whatcom county and enters Skagit through a grand canyon at her northern boundary, some 12 miles west of the northeast corner. Skirting the foothills of the Cascades, the Skagit flows southwesterly to near the county's center, north to south, and is here joined by the inflow of Cascade creek, flowing west. The course here diverges west, and 12 miles beyond it is joined by the waters of Sauk river, entering from a great valley to the south. Ten miles further on, Baker river enters from the north. Grandy creek enters from the north eight miles beyond Baker, and eight miles still further Day creek empties from the south. The westward course of the river is continued to within 12 miles of the western shore of the county, where the river again diverges to the south, emptying into Skagit Bay, an input of Puget Sound, marking the southwest corner of the county.

In its course the Skagit and her tributaries drain a vast watershed, including several large and fertile valleys. The westward course of the river is surmounted on either side and at varying distances by successions of foothills, whose summits mainly rise to their height near the northern and southern boundaries, respectively, of the county. West of midway these hills are supplanted, first by less pronounced eminences, then give way to an expanse of flat country, co-extensive with the county's width.

The valleys, side hills, and, in part, the flat country, are studded with a wealth of merchantable timber, the grandeur of which beggars description. The river and its main tributaries afford invaluable means of floating the logs cut from this timber off to mills and to markets, while the smaller streams afford to the angler the finest of trout fishing. Skagit river is permanently navigable a distance inland of 15 miles, and in its higher stages it has been found navigable for steamers to the mouth of Cascade creek, a distance of 80 miles.

Another river, short, but important because of the fertile country drained, is the Samish, coursing through the northwest portion of the county and finding an outlet in Samish Bay, one of the landlocked harbors of Puget Sound. This also is an important logging stream, and is navigable on tide to Edison, the center of population of Samish delta.

The eastern portion of Skagit county abounds in minerals of unknown wealth, and auxiliary to these deposits are the vast stores of limestone opposite the mouth of Sauk river and bordering the Baker near the mouth of the last named river. Large quantities of iron ore is found also on Sauk mountain, opposite the mouth of Sauk river, and along the south shores of Skagit river for a dozen or more miles near the exact center of the county. This latter has been demonstrated to possess high commercial value, and includes red hematite, magnetic, strap, and chrome ores. Some of the ledges carry a minimum of refractory substances. Asbestos abounds in the country tributary to Day creek, some of it bearing remarkably strong fiber, pure white, and in lengths, so far as developed, from two to five inches.

Greater development has been made on the Skagit coal fields. The measures span the county north to south, west of central, and are known to embrace more than 5,000 acres. They are immediately contiguous to the iron deposits, and some of the veins are closely underlaid with strata of fire clay. Seven separate properties have been located, one of which is developed to commercial productiveness, and another nearly so. Some of the remaining five yet outlie the government surveys. The coal varies from a lignite to semi-anthracite, with excellent coking coal, rich in carbon and gas and low in ash, predominating. Coke is here produced that fully equals the celebrated product of the Connellsville, Pa., regions. Some of the veins are 14 feet in thickness. Within two years 15 coke ovens have been built, and these are in constant blast, while others are building to meet the demands of the trade.

The timbered area of Skagit county covers 596,800 acres. A conservative estimate of the standing timber places the commercial stumpage at 15,817,585,000 feet. Douglas fir, the king of Washington forests, predominates, followed in the order named with cedar, spruce, Alaska pine, white pine, larch, maple, cottonwood and alder.

The agricultural lands are widely distributed and varied. The valley lands of eastern and central portions are subjected to the cooling influences of surrounding mountains, by which they are also protected. Hay, oats and hops are the principal field crops, but the valleys are splendidly adapted to culture of fruits, vegetables and flax, and to the pursuit of the dairy industry.

The Olympia marsh, west of central, contains 4,125 acres of land reclaimed by a perfect system of dikes and ditches. Beaver marsh, similar in size and character, is west of Olympia marsh, and separated from it by only a timber crowned ridge. Swinomish delta, just west, is a tide water delta bordering Swinomish channel, a navigable arm of Puget Sound, and interlaced with tidal sloughs, navigable on tide, thus affording excellent transportation and drainage. This, with Beaver marsh, embraces a cultivated area of 11,730 acres. Samish delta, over a ridge to the north, is like in character, and has a cultivated area of 4,353 acres. These marshes and deltas are widely celebrated for their marvelous productions of oats and hay. They grow, also, thrifty hops and vegetables, and fruitful orchards. The land, too, is well adapted to flax culture, and to dairying.

Swinomish Reserve, an Indian reservation, lies across Swinomish channel from the delta of that name, and embraces 15,000 acres of choice land, portions of which are held in severalty and tilled by Indian farmers.

The principal island of Skagit group is Fidalgo, whereon is situated Anacortes, the chief seaport town of the county, having a population of 1,500 people. Fidalgo harbor is a splendidly land-locked deep water bay. The fishing industry is fast springing into prominence at Anacortes. Three large canneries are now under construction, the combined capacity of which is to be 40,000 cases daily. Two hundred or more fishing locations have been secured on the fish banks adjacent, and preparations are completing for an active packing season in 1896. Here, too, is the main codfish curing and shipping establishment on Puget Sound.

Guemes, Cypress and other islands are included in the Skagit group, mostly well adapted to agriculture and horticulture. Much attention is here given to the production of small fruits and vegetables. The growing of cabbage seeds, including cauliflower, is here a prominent industry. One of the eminently successful seed farms of the state is on Swinomish delta, at La Conner, a thriving town of 800 people.

Fishing for shipment is becoming a leading industry here, already employing 200 people. The returns from this source in 1895 netted $30,000 at La Conner. The same line of industry was initiated on the Skagit river in 1895, yielding here a return estimated at $10,000.

Mount Vernon is the county seat of Skagit county. It is a lumbering and agricultural town on the Skagit river, eight miles from its mouth, and contains a population of about 1,600. The coast line of the Great Northern Railroad passes through Mount Vernon.

Burlington, four miles north, marks the junction of the Great Northern coast line with the Seattle & Northern, a local railway thirty-five miles long, connecting the seaport at Anacortes with the heart of the coal fields at Hamilton.

Sedro-Woolley is five miles east of Burlington, on the line of the Seattle & Northern and at the junction of the Seattle, Lake Shore & Eastern and the Fairhaven & Southern with this road. The latter is extended to Cokedale, five miles northeast of Sedro, where the Skagit Coal & Transportation Company's coal mine and coking plant are in operation.

Lumbering is a chief industry of Skagit county, with fishing and dairying coming rapidly into prominence. In addition to the tabulated statement of labor employed in her lumber industries, several logging camps are in operation, employing 300 to 400 men. The present population of the county is approximately 10,000.

No. of coal mines in operation	1
No. of employes	70
No. of days employed annually	320
No. of hours employed per day	10
Wages per day	$2 50
Total product for year 1895 — coal	20,276 tons.
Total product for year 1895 — coke	3,800 tons.
No. of acres land in county	1,171,000
No. of acres land taken up under various laws, including grants and reservations	392,959
No. of acres land remaining to be taken up under laws of the United States	778,041
No. of acres granted lands for sale by the State of Washington	70,233
No. of farms	850
No. of acres upland	250,000
No. of acres bottom land	100,000
No. of acres timber land	375,000
No. of acres prairie land	45,000
No. of acres coal land	5,900
No. of acres mineral land	527
No. of acres under cultivation	30,150
No. of acres wheat	200
Average yield per acre	35 bush.
No. of acres oats	18,000
Average yield per acre	80 bush.
No. of acres barley	100
Average yield per acre	45 bush.
No. of acres corn	50
Average yield per acre	30 bush.
No. of acres hops	230
Average yield per acre	1,200 lbs.
No. of acres hay	8,000
Average yield per acre	3 tons.
No. of acres potatoes	800
Average yield per acre	200 bush.

No. of acres fruit	600
No. of acres other products	2,170
No. of pounds of wool produced	4,500
Average price for dairy products per pound, butter	15c.
No. of males employed, farm work	600
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$25
No. of males employed in logging camps	250
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per month	$55
No. of males employed in saw and shingle mills	975
Average number of hours employed per day	10
Average number of days employed per year	280
Average wages paid per month	$45
No. of saw mills in operation	11
Daily capacity of same	271,000 ft.
Average actual daily output of same	143,500 ft.
Amount of capital invested therein	$288,000
No. of shingle mills in operation	29
Daily capacity of same	2,875,000
Average daily output of same	2,473,000
Amount of capital invested	$171,000
Total output of lumber, 1895	38,800,000 ft.
Total output of shingles, 1895	690,660,000
Amount of lumber product consumed in state	15,470,000 ft.
Amount of lumber product exported from state	23,330,000 ft.
Amount of shingle product consumed in state	1,200,000
Amount of shingle product exported from state	689,460,000
No. of tons of fresh fish shipped	170

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	1,663	1,574	3,237
No. of children enrolled in public schools	1,357	1,269	2,626
Average daily attendance	904	856	1,760
No. of children over 6 years of age not enrolled in any school during year	122	120	242
No. of children between 8 and 15 years of age attending school less than three months during year	109	127	236
No. of teachers employed during year	42	61	103
No. of teachers employed in private schools during year	3	2	5

Average monthly salary paid male teacher during year	$46 56
Average monthly salary paid female teacher during year	$42 75
Estimated value of school houses, including grounds	$130,030 00
Estimated value of school furniture	$15,450 00
Estimated value of apparatus, including maps, charts, etc	$4,034 00
Estimated value of libraries	$338 00
Total value of all school property	$149,852 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$46,041 00
Amount of school district bonds outstanding at close of school year	$109,650 00
Average number of days school was maintained during year	111
No. of school districts in county	63
No. of graded schools in county	6
No. of private schools taught in county during year	8
No. of school houses built during year	4
No. of school houses now in county	62
Total seating capacity of all school houses in county	4,661
No. of districts in county not supplied with school houses	4

SKAMANIA COUNTY.

Skamania county is bounded on the south by the Columbia river, on the west by Clarke and Cowlitz counties, on the north by Lewis county, and on the east by Klickitat and Yakima counties. It contains about 1,500 square miles of territory and is well watered by numerous streams; is situated in the heart of the Cascade mountains and a great part of it is consequently rugged and broken, presenting high peaks and deep gorges.

The principal articles of export from Skamania county are cordwood, lumber and fish. The fishing industry of Skamania is confined almost exclusively to salmon and sturgeon, and is a source of considerable profit to the residents of the county. The mountain streams and lakes are filled with splendid trout, but no attempt is made to catch them for profit.

The lumber industry of this county is still in its infancy. Several small mills are being operated from time to time as demand justifies. The mill owned by the Oregon Lumber Company, located near the mouth of the Little White Salmon river, has been operated continually during the past year and finds ready sale for its output. This is the largest mill in the county, having a daily capacity of 60,000 feet. Logging is also carried on to a considerable extent with encouraging results.

The soil of the county is capable of producing favorable results in all branches of agriculture. Large areas of government lands, well adapted to farming, are open to settlement under the laws of the United States.

Stevenson is the county seat. Population of the county is about 2,000.

No. of acres land in county	1,046,500
No. of acres land taken up under various laws, including grants and reservations	89,597
No. of acres land remaining to be taken up under laws of the United States	956,903
No. of acres granted lands for sale by the State of Washington	75,471
No. of farms	360
No. of acres upland	1,000,000
No. of acres bottom land	5,000
No. of acres timber land	500,000
No. of acres under cultivation	6,000
No. of acres oats	500
Average yield per acre	50 bush.
No. of acres potatoes	1,000
Average yield per acre	200 bush.

No. of acres fruit	1,000
No. of acres other products	3,500
Pounds of butter produced	40,000
Average price for dairy products per pound, butter	20c.
No. of males employed in logging camps	300
Average number of hours employed per day	10
Average number of days employed per year	280
Average wages paid per month	$45
No. of males employed in saw mills	100
Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$40
No. of males employed in manufacturing enterprises, skilled labor	15
Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$65
No. of saw mills in operation	7
Daily capacity of same	125,000 ft.
Average actual daily output of same	75,000 ft.
Amount of capital invested therein	$120,000
No. of shingle mills in operation	1
Daily capacity of same	25,000
Average daily output of same	4,000
Amount of capital invested	$2,000
Cord wood produced	50,000 cords.
Average price per cord	$1 25
No. of tons fresh fish shipped	400
Value of same	$32,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	237	198	435
No. of children enrolled in public schools	161	152	313
Average daily attendance	112	102	214
No. of children between 8 and 15 years of age attending school less than three months during year	20	24	44
No. of teachers employed during year	5	15	20

Average monthly salary paid male teacher during year	$32 29
Average monthly salary paid female teacher during year	$28 16
Estimated value of school houses, including grounds	$2,150 00
Estimated value of school furniture	$373 50
Estimated value of apparatus, including maps, charts, etc	$325 00
Total value of all school property	$2,848 50
Average number of days school was maintained during year	65
No. of school districts in county	14
No. of school houses built during year	2
No. of school houses now in county	10
Total seating capacity of all school houses in county	212
No. of districts in county not supplied with school houses	3

SNOHOMISH COUNTY.

Snohomish county is bounded on the north by Skagit county; east by the summit of the Cascade mountains; south by King county, and west by Puget Sound. It is 36 miles wide north to south, and 60 to 75 miles long from mountain summit to the sea.

Its area is nearly 2,500 square miles. The northern portion of the county is drained by Stillaguamish river and tributaries; the southern portion by Snohomish river and its tributaries. The Skykomish and Snoqualmie unite to form the Snohomish, 20 miles above its mouth. The northeastern portion of the county is drained by tributaries of Skagit river. Each year steamboats navigate over 100 miles of Snohomish river and tributaries, and connecting sloughs. Stillaguamish river is smaller than the Snohomish, but has many miles of sloughs and channels constantly used for steamboat navigation. The slough channels permeate the deltas bordering each of these rivers, their navigation affording convenient access to the tide marsh farms in these fertile regions.

The Seattle & Montana and the Seattle, Lake Shore & Eastern Railways each cross the county from north to south, while the Great Northern Railway extends from Everett eastward across the county, and the Everett & Monte Cristo Railway extends from Everett into the center of the mining region about Monte Cristo. There are over two hundred miles of railroad in the county, 150 miles of navigable rivers, sloughs and channels, and a salt water frontage of some 50 miles. The combined fresh and salt water harbors now being made adjacent each other at Everett will furnish complete facilities for an immense commerce at that point.

The leading towns of Snohomish county are Everett, Snohomish, Marysville, Edmunds, Lowell, Muckelteo, Stanwood, Florence, Arlington, Haller, Sultan, Monroe, Hartford, Monte Cristo, Granite Falls, Silverton and Galena.

Snohomish is the county seat of the county, and occupies an important position as a commercial factor, being situated on the banks of the Snohomish river, in the heart of a fine agricultural region of the Snohomish valley. Important lumbering and mining interests also are centered here.

The chief industries of Snohomish county, until recently, have been lumbering and farming. These still are important interests, and will continue to be; for the agricultural area of the county is being constantly extended, and though the forests have been heavily drawn upon in the recent past, the main forests of this locality are, comparatively speaking, as yet practically untouched. But both these interests are likely to be outstripped by the rapidly developing mining interests and the large manufacturing enterprises started and projected at Everett. And yet these interests and enterprises will serve to stimulate, rather than cripple, both the farming and lumbering interests, as they are important and profitable patrons of both.

Large eastern capital centers here, and the harbors and railroads of Snohomish county afford unexcelled advantages for transportation. A large per cent. of her soil is kissed with that fertility that marks the productiveness of the Puget Sound region. Its dairy interests are large, and in the growth of grain, fruits and vegetables the county has justly earned high rank among the newer counties of the state.

More capital has been invested in Snohomish county since 1890, in the development of mines, building of railroads and establishing of manufactures, than in any other county of the state. Yet the mining and manufacturing interests of the county seem to be only in their infancy.

No. of acres land in county	1,195,180
No. of acres land taken up under various laws, including grants and reservations	544,030
No. of acres land remaining to be taken up under laws of the United States	651,150
No. of acres granted lands for sale by the State of Washington	54,221
No. of acres granted lands for sale by the Northern Pacific Railroad Co.	15,417
No. of farms	2,450
No. of acres upland	138,354
No. of acres bottom land	55,060
No. of acres timber land	360,000
No. of acres coal land	2,000
No. of acres mineral land	50,397
No. of acres under cultivation	18,353
No. of acres wheat	100
Average yield per acre	40 bush.
No. of acres oats	5,000
Average yield per acre	40 bush.
No. of acres barley	1,500
Average yield per acre	30 bush.
No. of acres hops	210
Average yield per acre	3,000 lbs.
No. of acres potatoes	700
Average yield per acre	160 bush.
No. of acres fruit	3,506
No. of acres other products	7,800
No. of pounds of wool produced	13,000
No. of dairies	85
No. of cows furnishing milk therefor	4,560
Average price for dairy products per pound, butter	15c.
Amount of capital invested in dairies	$257,400
No. of males employed, farm work	1,000
Average number of hours employed per day	10
Average number of days employed per year	208
Average wages paid per month	$25
No. of males employed in logging camps	226
Average number of hours employed per day	10
Average number of days employed per year	150

Average wages paid per month	$40
No. of males employed in saw mills	580
Average number of hours employed per day	10
Average number of days employed per year	208
Average wages paid per month	$40
No. of males employed in manufacturing enterprises, skilled labor	328
Average number of hours employed per day	10
Average number of days employed per year	208
Average wages paid per month	$60
No. of males employed in manufacturing enterprises, common labor	936
Average number of hours employed per day	10
Average number of days employed per year	208
Average wages paid per month	$40
No. of males employed, common labor, other than manufacturing	165
Average number of hours employed per day	10
Average number of days employed per year	180
Average wages paid per month	$30
No. of males employed in clerical positions	319
Average number of hours employed per day	8
Average number of days employed per year	310
Average wages paid per month	$60
No. of females employed in clerical positions	93
Average number of hours employed per day	8
Average number of days employed per year	208
Average wages paid per month	$40
No. of females employed in manufacturing enterprises	33
Average number of hours employed per day	10
Average number of days employed per year	310
Average wages paid per month	$30
No. of females employed as domestics	369
Average number of hours employed per day	14
Average number of days employed per year	300
Average wages paid per month	$15
No. of mechanics employed in building trades, stone cutters	40
Average number of hours employed per day	9
Average number of days employed per year	100
Average wages paid per day	$3
No. of mechanics employed in building trades, brick masons	26
Average number of hours employed per day	10
Average number of days employed per year	165
Average wages paid per day	$3 50
No. of mechanics employed in building trades, plasterers	25
Average number of hours employed per day	9
Average number of days employed per year	100
Average wages paid per day	$4
No. of mechanics employed in building trades, carpenters	163
Average number of hours employed per day	10
Average number of days employed per year	280
Average wages paid per day	$3
No. of saw mills in operation	11
Daily capacity of same	175,000 ft.
Average actual daily output of same	90,000 ft.
Amount of capital invested therein	$125,000
No. of shingle mills in operation	41
Daily capacity of same	3,280,000
Average daily output of same	164,000
Amount of capital invested	$205,000
No. of other wood working factories	6
Amount of capital invested	$20,000
Barge works in operation	1

Amount of capital invested	$175,000
Paper and pulp mill in operation	1
Daily output of same	15 tons.
Amount of capital invested	$650,000
Wire nail works in operation	1
Daily capacity of same	1,000 kegs.
Average daily output	800 kegs.
Amount of capital invested	$225,000
Concentrator in operation	1
Amount of capital invested	$135,000
Smelter in operation	1
Capital invested	$300,000

Following is the statement of smelter for the year 1895:

43,300 bars bullion, containing—

Gold	8,593 oz.
Silver	656,690 oz.
Lead	3,897,883 lbs.
Total value	$723,193 67

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	2,395	2,227	4,622
No. of children enrolled in public schools	1,834	1,751	3,585
Average daily attendance	1,293	1,241	2,534
No. of children over 6 years of age not enrolled in any school during year	430	348	778
No. of children between 8 and 15 years of age attending school less than three months during year	177	144	321
No. of teachers employed during year	52	87	139
No. of teachers employed in private schools during year	1	......	1

Average monthly salary paid male teacher during year	$47 05
Average monthly salary paid female teacher during year	$42 41
Estimated value of school houses, including grounds	$179,695 00
Estimated value of school furniture	$16,597 00
Estimated value of apparatus, including maps, charts, etc	$4,018 00
Estimated value of libraries	$1,019 00
Total value of all school property	$201,329 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$79,696 00
Amount of school district bonds outstanding at close of school year	$171,700 00
Average number of days school was maintained during year	88
No. of school districts in county	75
No. of graded schools in county	7
No. of private schools taught in county during year	1
No. of school houses built during year	3
No. of school houses now in county	71
Total seating capacity of all school houses in county	4,883
No. of districts in county not supplied with school houses	10

SPOKANE COUNTY.

Spokane county contains an area of 1,600 square miles, and is one of the easterly tier of counties of the State of Washington, adjoining the State of Idaho.

For the production of grains, grasses, fruits and vegetables this county is unsurpassed. Located in its very center is the city of Spokane, having a population of thirty thousand people.

An abundance of fir, tamarack, pine and cedar, for building purposes and for fuel, is close at hand in every part of the county. At or near every settlement is to be found one or more saw mills.

Within its borders are innumerable lakes, rivers, brooks, and never-failing springs of the purest water, which especially adapts this section of the state to dairying, and to all agricultural and horticultural pursuits. The Spokane county farmer enjoys, perhaps, the very best home market to be found anywhere in this western country. It has within its borders more lines of railroad centering upon the city of Spokane, and a greater mileage than any other county in the Pacific Northwest.

The city of Spokane, as is well known, is the railroad, manufacturing and distributing center for all of the country lying between the Rocky mountains and the Cascade range, including Eastern Washington, Northern Idaho and a portion of British Columbia. It includes a radius of about two hundred and fifty miles in every direction from Spokane.

At Spokane are centered the main lines of the Northern Pacific and Great Northern transcontinental railroads; the Oregon Railway & Navigation Company's road, giving connection to the south with the Union Pacific, the Spokane Falls & Northern Railroad, giving connection to the north with the Canadian Pacific; and from this point also diverge the Spokane & Palouse, the Spokane & Idaho, and the Central Washington branches of the Northern Pacific system.

The horticultural interests of Spokane county have, during the past ten years, made rapid strides, and this county to-day is a heavy producer of apples, pears, plums, prunes, cherries and all kinds of small fruits, for which there is at all times a ready market at Spokane and in the mining districts of British Columbia, North Idaho and Montana. For size, flavor, color and general excellence, Spokane county fruit cannot be surpassed.

The rainfall is amply sufficient to insure excellent crops, and there is no such thing known as irrigation in Spokane county. No portion of the State of Washington is better adapted to general mixed farming than is Spokane county. The farmers' wheat is manufactured into flour at the great flouring mills at Spokane, his hogs find a ready sale through the Spokane packing houses, his barley, is required by the Spokane breweries, and through the Spokane commission houses he can at all times find a cash market for all of his fruit and other products of the farm. He can take his choice between shipping by rail or bringing his products by wagon to the commercial center of the Inland Empire.

Celery, tomatoes and all kinds of garden truck are produced in this county in great quantities per acre, and in perfection. The very choicest of land, under cultivation, and within one hour's drive of the city of Spokane, can be purchased at from $25 to $50 per acre. The price of land generally throughout the county ranges from $5 to $10 per acre for unimproved lands, and at from $15 to $50 per acre for lands wholly or partially under cultivation. While the best of government lands have long since been settled upon, there are still a limited number of homesteads to be taken up.

In addition to the city of Spokane, this county has built up and is supporting a number of smaller trade centers of considerable importance. In the southeasterly portion of the county are the towns of Rockford, Fairfield, Waverly, Latah and Spangle. To the west are Cheney, at which place is located the state normal school; Medical Lake, celebrated for the medicinal quality of its waters, and from which the town takes its name, which is destined in the future to become one of the great sanitariums of America; and to the north are a number of new towns along the line of the Spokane Falls & Northern Railroad.

The southerly part of the county, together with Whitman county, Washington, and Latah county, Idaho, form what is known as the Palouse valley. The westerly portion of Spokane county, together with Lincoln and adjacent counties, form what is known as the Big Bend of the Columbia. The Palouse country and the Big Bend together form an area of country so vast in proportions, and so rich in all productions of the soil, that the whole is known as the Inland Empire, the trade of which naturally centers at Spokane county's chief city—Spokane.

No. of acres land in county	1,184,700
No. of acres land taken up under various laws, including grants and reservations	1,016,314
No. of acres land remaining to be taken up under laws of the United States.	118,386
No. of acres granted lands for sale by the State of Washington	51,313
No. of acres granted lands for sale by the Northern Pacific Railroad Co	162,459
No. of farms	3,563
No. of acres upland	984,991
No. of acres bottom land	22,586
No. of acres timber land	412,775

No. of acres prairie land	331,163
No. of acres under cultivation	150,000
No. of acres wheat	34,437
Average yield per acre	18 bush.
No. of acres oats	9,806
Average yield per acre	33 bush.
No. of acres barley	1,159
Average yield per acre	33 bush.
No. of acres corn	262
Average yield per acre	22 bush.
No. of acres hops	100
Average yield per acre	1,000 lbs.
No. of acres sugar beets	280
Average yield per acre	18 tons.
No. of acres potatoes	2,500
Average yield per acre	91 bush.
No. of acres fruit	2,900
No. of acres hay	5,500
Average yield per acre	2 tons.
No. of acres other products	93,000
No. of dairies	115
No. of cows furnishing milk therefor	2,170
Average price for dairy products per pound, butter	22c.
Amount of capital invested in dairies	$100,000
No. of males employed, farm work	425
Average number of hours employed per day	11
Average number of days employed per year	203
Average wages paid per month	$22
No. of males employed in logging camps	94
Average number of hours employed per day	10
Average number of days employed per year	224
Average wages paid per month	$33
No. of males employed in saw mills	160
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$30
No. of males employed in manufacturing enterprises, skilled labor	697
Average number of hours employed per day	9
Average number of days employed per year	294
Average wages paid per month	$58
No. of males employed in manufacturing enterprises, common labor	290
Average number of hours employed per day	10
Average number of days employed per year	270
Average wages paid per month	44
No. of males employed, common labor, other than manufacturing	537
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$38
No. of males employed in clerical positions	564
Average number of hours employed per day	9
Average number of days employed per year	900
Average wages paid per month	$80
No. of females employed in clerical positions	107
Average number of hours employed per day	9
Average number of days employed per year	300
Average wages paid per month	$38
No of females employed in manufacturing enterprises	90
Average number of hours employed per day	9
Average number of days employed per year	211
Average wages paid per month	$35

No. of females employed as domestics	755
Average number of hours employed per day	11
Average number of days employed per year	330
Average wages paid per month	$21
No. of mechanics employed in building trades, stone cutters	141
Average number of hours employed per day	8
Average number of days employed per year	175
Average wages paid per month	$92
No. of mechanics employed in building trades, brick masons	75
Average number of hours employed per day	8½
Average number of days employed per year	160
Average wages paid per month	$110
No. of mechanics employed in building trades, plasterers	57
Average number of hours employed per day	9
Average number of days employed per year	110
Average wages paid per month	$90
No. of mechanics employed in building trades, carpenters	155
Average number of hours employed per day	9
Average number of days employed per year	170
Average wages paid per month	$45
No. of saw mills in operation	19
Daily capacity of same	215,000 ft.
Average actual daily output of same	151,000 ft.
Amount of capital invested therein	$51,125
No. of flour mills in operation	7
Daily capacity of same	2,140 bbls.
Average daily output	2,048 bbls.
Amount of capital invested	$545,000
Total output for 1895	630,000 bbls.
Quantity of product consumed in state	220,000 bbls.
Quantity of product exported from state	410,000 bbls.
No. of soap factories in operation	2
Amount of capital invested	$25,000
Output for 1895	1,500,000 lbs.
Quantity of product consumed in state	700,000 lbs.
Quantity of product exported from state	800,000 lbs.
No. of broom factories in operation	2
Amount of capital invested	$8,000
Output for 1895	4,400 doz.
Quantity of product consumed in state	3,300 doz.
Quantity of product exported from state	1,100 doz.
No. of woodenware factories	1
Amount of capital invested	$7,500
Value of output for 1895	$20,000
Quantity of output consumed in state	75 per cent.
Quantity of output exported from state	25 per cent.
No. of breweries in operation	4
Amount of capital invested	$400,000
Daily capacity of same	225 bbls.
Total output for 1895	26,000 bbls.
Value of output	$210,000
No. of iron works in operation	3
Amount of capital invested	$280,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	5,378	5,287	10,665
No. of children enrolled in public schools	4,098	3,989	8,087
Average daily attendance	2,685	2,755	5,440
No. of children over 6 years of age not enrolled in any school during year	948	1,072	2,020

	Male.	*Fem.*	*Total.*
No. of children between 8 and 15 years of age attending school less than three months during year	358	310	668
No. of teachers employed during year	80	212	292
No. of teachers employed in private schools during year	26	30	56

Average monthly salary paid male teacher during year	$53 80
Average monthly salary paid female teacher during year	$52 80
Estimated value of school houses, including grounds	$606,761 00
Estimated value of school furniture	$37,271 00
Estimated value of apparatus, including maps, charts, etc	$7,546 00
Estimated value of libraries	$985 00
Total value of all school property	$652,563 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$91,207 00
Amount of school district bonds outstanding at close of school year	$352,250 00
Average number of days school was maintained during year	121
No. of school districts in county	130
No. of graded schools in county	19
No. of private schools taught in county during year	3
No. of school houses built during year	5
No. of school houses now in county	140
Total seating capacity of all school houses in county	9,453
No. of districts in county not supplied with school houses	4

STEVENS COUNTY.

Stevens county, including the territory embraced within the Colville Indian reservation, comprises an area of nearly 4,000,000 acres of land. With its vast ranges for stock, great forests of timber, broad valleys and sloping uplands adapted to the pursuit of agriculture and fruit growing, mountain ranges embosoming countless millions of mineral wealth, there are few portions of the northwest that present so great a diversity of resources, or open to the intending home builder or tradesman an ampler field for future development, growth and wealth.

The surface of the county is made up of valleys from two to five miles wide, along the rivers flowing northward to the Columbia; partially timbered and grassy uplands, skirting a wide region, sweeping, in some places, many miles back to the rugged buttes which form low ranges of mountains in the interior. The valleys are mostly flat, and in the past have been subject to overflow during a great portion of the year, resulting in a rich deposit of sedimentary or vegetable soil. The development in recent years has had the effect of draining the greater area of these vallleys, and the lands thus reclaimed are adapted to the growth of hay, the yield of which averages two tons of timothy to the acre. The uplands afford desirable homes for the farmer, the fruitgrower and the stockman.

The forests of Stevens county are largely confined to the mountain regions and along the foot hills. The timber growth is prolific and well developed. Pine, fir, spruce and cedar grow in splendid proportions, in endless quantity and of a superior quality.

A variety of building stone, porcelain, terra cotta and fine clays exist in profusion in all parts of the county, and their development already is an important feature. Large deposits of marble have been under development for some time, and have been found in all respects to equal the best Italian. The onyx deposits near Springdale, taken with the granite and marble fields of the county, form an excellent foundation for the profitable investment of capital in their development.

At Springdale there are very extensive lime kilns. The supply of limestone is inexhaustible, and the quality is unsurpassed in point of strength and adaptability for all purposes to which lime is used.

At Clayton, on the line of the Spokane Falls & Northern Railroad, an enterprise of importance to the entire State of Washington has been established, devoted to the manufacture of the deposits of clay into almost every conceivable design of the art. The supply of kaolin and other clays found is inexhaustible. This plant was built during the years of 1893-4, at an expense of nearly $200,000, and is equipped with the most improved machinery for the manufacture of fire brick, pressed brick, terra cotta and stoneware.

Colville is the county seat of Stevens county, and the center of a rich mining district, situated on the Colville river fifteen miles from its junction with the Columbia river.

No. of placer mines in operation	20
No. of employes	60
No. of days employed annually	200
No. of hours employed per day	8
Wages paid per day	$2
Total yield of placer mines for season	$24,000
Capital invested	$5,500
No. of quartz mines in operation	9
No. of employes	70
No. of days employed annually	280
No. of hours employed per day	8
Wages paid per day	$3
Total yield of quartz mines for season	$170,000
No. of acres land in county	3,951,500

No. of acres land taken up under various laws, including grants and reservations	2,353,270
No. of acres land remaining to be taken up under laws of the United States	1,598,230
No. of acres granted lands for sale by the State of Washington	343,477
No. of acres granted lands for sale by Northern Pacific R. R. Co	179,518
No. of farms	1,200
No. of acres upland	2,140,000
No. of acres bottom land	80,000
No. of acres timber land	1,900,000
No. of acres prairie land	4,500
No. of acres mineral land	160,000
No. of acres under cultivation	100,000
No. of acres wheat	7,000
Average yield per acre	20 bush.
No. of acres oats	15,000
Average yield per acre	40 bush.
No. of acres barley	3,500
Average yield per acre	30 bush.
No. of acres corn	1,000
Average yield per acre	50 bush.
No. of acres hops	10
Average yield per acre	2,000 lbs.
No. of acres potatoes	4,000
Average yield per acre	160 bush.
No. of acres fruit	2,000
No. of acres hay	30,000
Average yield per acre	2 tons.
No. of acres other products	37,500
No. of dairies	5
No. of cows furnishing milk therefor	400
Average price for dairy products per pound, butter	25c.
Amount of capital invested in dairies	$6,000
No. of males employed, farm work	500
Average number of hours employed per day	12
Average number of days employed per year	250
Average wages paid per month	$25
No. of males employed in logging camps	50
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed in saw mills	110
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$35
No. of males employed in manufacturing enterprises, skilled labor	12
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$60
No. of males employed in manufacturing enterprises, common labor	80
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$25
No. of males employed, common labor, other than manufacturing	70
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$25
No. of males employed in clerical positions	40
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$50

No. of females employed in clerical positions	10
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$30
No. of females employed as domestics	125
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$12
No. of mechanics employed in building trades, brick masons	6
Average number of hours employed per day	10
Average number of days employed per year	180
Average wages paid per day	$5
No. mechanics employed in building trades, carpenters	50
Average number of hours employed per day	10
Average number of days employed per year	200
Average wages paid per day	$2 50
No. of saw mills in operation	11
Daily capacity of same	110,000 ft.
Average actual daily output of same	40,000 ft.
Amount of capital invested therein	$45,000
No. of flour mills in operation	2
Daily capacity of same	85 bbls.
Average daily output	50 bbls.
Amount of capital invested	$15,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	1,225	1,140	2,365
No. of children enrolled in public schools	962	879	1,841
Average daily attendance	610	589	1,199
No. of children over 6 years of age not enrolled in any school during year	169	200	369
No. of children between 8 and 15 years of age attending school less than three months during year	196	164	360
No. of teachers employed during year	44	56	100
No. of teachers employed in private schools during year	3	......	3

Average monthly salary paid male teacher during year	$42 00
Average monthly salary paid female teacher during year	$41 70
Estimated value of school houses, including grounds	$21,450 00
Estimated value of school furniture	$4,474 00
Estimated value of apparatus, including maps, charts, etc	$1,969 00
Estimated value of libraries	$60 00
Total value of all school property	$27,953 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$19,929 00
Amount of school district bonds outstanding at close of school year	$11,800 00
Average number days school was maintained during year	79
No. of school districts in county	72
No. of graded schools in county	2
No. of private schools taught in county during year	3
No. of school houses built during year	9
No. of school houses now in county	55
Total seating capacity of all school houses in county	2,169
No. of districts in county not supplied with school houses	17

THURSTON COUNTY.

Thurston county is situated in about the geographical center of Western Washington, and possesses many and varied resources. It is bounded on the north by Mason county, on the east by Pierce, on the south by Lewis, and on the west by Chehalis county. It has a shore line of over fifty miles bordering upon Puget Sound, which at this point ramifies into various bays and inlets, designated upon the maps by various names, but which are in fact but continuations of this wonderful body of water.

The topography of the county is extremely varied, the western portion being traversed by the Black hills, a spur of the Olympic range of mountains. These hills are covered by magnificent forests of the best quality of timber; single sections producing from twenty to forty million feet. When the timber is removed the land is particularly adapted to fruit growing, while the valleys consist of first-class agricultural lands for the production of cereals, small fruits, hay and root crops. Numerous streams, prairies and lakes diversify the surface of the country.

The agricultural district is a large and fertile one. Farming, however, has been sadly neglected in the past, owing to the lack of transportation facilities and the great cost of clearing land for cultivation, but now that railroads have pushed their way through the forests, and roads have been built, and the wonderful productiveness of the land discovered, thousands of acres are being opened up and improved.

Thurston county is rapidly coming to the front as one of the leading fruit growing counties of the state. Protected on all sides from sweeping blasts by high ranges of hills and mountains, the atmosphere tempered by the warm salt air from the Japan current, which through the numerous arms of Puget Sound penetrates far into the interior of the county, safe from seasons of protracted drouth, here is a country where all the conditions exist for the successful culture of fruit. It is but a short time since the wonderful possibilities in this direction were discovered, but the people have become aroused to the importance of this industry, and within the past three years no less than 500,000 fruit trees have been planted in the county, and are now being planted at the rate of

100,000 per annum. Here the prune, cherry, quince and certain varieties of apples and pears reach perfection, and with all the favorable conditions surrounding this favored locality a total failure of crop is almost unknown. Good, well kept orchards yield from $100 to $500 per acre. The possibilities in the line of small fruit culture are something enormous. The yield per acre, size and quality is something that must be seen to be fully appreciated. Strawberries, blackberries, raspberries, currants, gooseberries, etc., produce the most bountiful crops and of the most excellent quality. The humidity of the climate in this section renders artificial irrigation unnecessary. All that is necessary to insure bountiful crops is thorough cultivation and intelligent, well directed effort.

The question will naturally arise, "Where will you find a market for your fruit?" It is a well established fact that the manufacturer that can produce the best article in any established line of industry, the baker, the butcher, confectioner, restauranteur, market gardener or fruit grower that can offer the best and most tempting viands and wares at a price within reach of the general public, may rest assured of a sure, steady and ever increasing demand for his products. It has been successfully demonstrated that we can produce the quality and that our fruits can be properly marketed in the large cities of the east. During the past season several train loads of Washington fruit (including a number of cars from Thurston county) were shipped to St. Paul, Minneapolis, Chicago, Denver and Omaha. The demand for this fruit and the prices obtained, even in this period of financial depression and the low prices prevailing, has demonstrated the fact that we can produce a quality and a quantity to the acre that permits us to enter all of the great markets of the United States. The recent rich gold discoveries in Alaska and British Columbia has caused a vast emigration to those districts. All of that population are consumers engaged in other than pastoral pursuits, and open up a market right at our very doors for these products which climatic conditions do not permit them to supply themselves, and which we, by reason of being the nearest source of supply, are bound to furnish. This new mining district is a vast empire of itself, but yet in the infancy of its development, and will for years to come afford a great and growing market for our products.

The manufacturing industries of the county consist principally of saw mills, shingle mills, sash and door mills, etc. We have also one roller flouring mill, one wooden water pipe factory, one ice factory, one brewery, four creameries, four brick yards, and numerous small concerns.

In the central and southern portions of the county are vast deposits of blue and buff sandstone. This sandstone is fireproof, free from flaws and possesses a great tensile and crushing strength. Three large quarries have been developed and are in successful operation, and the product shipped to all parts of the state and coast. Deposits of granite and limestone are also found, but as yet are undeveloped. A large quarry of porphyry rock has recently been opened, the product of which is used for street paving and macadamizing. Rich specimens of iron ore and bog iron have been discovered, not far from salt water, but have not yet been sufficiently prospected to determine the extent of the leads or deposits. Several veins of lignite coal have been discovered, but up to the present time only one mine in the county has been in operation.

The waters of the Sound, which indent the northern coast of Thurston county, teem with excellent varieties of fish, such as salmon, sardines, smelt, candle fish, flounders, sole, salmon trout, sea bass, perch, herring, rock cod, tom cod, ling, etc. The shipment of these food fishes is an industry that is fast assuming large proportions. The native Olympia oyster, while extremely small, has a flavor possessed by no other oyster, which is highly esteemed by epicures. Clams are found in inexhaustible quantities, and range in size from a twenty-five-cent piece to the enormous proportions of twelve pounds each. Crabs and shrimps are also abundant.

The principal rivers of the county are the Black, Chehalis, Des Chutes and Nisqually. There are a number of smaller streams capable of developing considerable power for manufacturing purposes. The Des Chutes is particularly adapted to this purpose. At the town of Tumwater, which adjoins Olympia, in emptying into the Sound, the river has a fall of 82 feet in less than 500 yards, falling in a succession of three cascades, with a volume sufficient to give from 1,000 to 4,000 horse power. Several factories are already established there, and electricity generated for supplying the street car and lighting systems of Olympia and Tumwater; and yet but a small portion of the power is utilized.

The principal cities and towns of the county are Olympia, Bucoda, Tumwater, Tenino, Little Rock, Gate City, Rochester, Rainier, Yelm and Maxfield.

Olympia is the capital of the State of Washington and the county seat of Thurston county. It is situated on Budd's Inlet, at the extreme head of navigation on Puget Sound. It is one of the oldest cities in the state, but its earlier development was seriously retarded by the shoal water of the harbor, which prevented ships from landing nearer than a mile and a half from the city, except at high tide. The national government has made large appropriations for the improvement of the harbor, and a broad deep channel is now being dredged from the outer deep water harbor right up to within one block of the heart of the city. It is well supplied with railroad facilities and numerous lines of steamers ply from here to other ports on Puget Sound. The fact that it is the permanent capital of the State of Washington would alone suffice to build up quite a large city. Congress has endowed the state with 132,000 acres of land for the erection of a capitol building, and this princely grant, now estimated to be worth $1,500,000, can only be devoted to this purpose. The plans for a magnificent building have already been adopted, which is to cost $1,000,000, and the basement is already completed. The legislature has authorized the completion of the structure, and it is confidently expected that it will be finished in three years.

The residence of the governor and state officers is here; it is also the seat of the United States district land and surveyor general's offices, the meeting place of the legislature, supreme court and numerous state boards, and also the residence of the various county officials. The population is about 5,000 in the city and about 10,000 in the county.

No. of acres land in county	470,000
No. of acres land taken up under various laws, including grants and reservations	450,000
No. of acres land remaining to be taken up under laws of the United States	20,000
No. of acres granted lands for sale by the State of Washington	24,833
No. of acres granted lands for sale by Northern Pacific R. R. Co	71,105
No. of farms	542
No. of acres upland	20,000
No. of acres bottom land	55,000
No. of acres timber land	300,000
No. of acres prairie land	42,000
No. of acres coal land	4,000
No. of acres mineral land	5,000
No. of acres under cultivation	12,500
No. of acres wheat	610
Average yield per acre	25 bush.
No. of acres oats	1,300
Average yield per acre	40 bush.
No. of acres hay	6,000

Average yield per acre	
No. of acres hops	
Average yield per acre	1,8
No. of acres strawberries	
Average yield per acre	3,5
No. of acres potatoes	
Average yield per acre	250
No. of acres fruit	
No. of acres other products	
No. of pounds of wool produced	
No. of creameries	
No. of cows furnishing milk therefor	
Average price for dairy products per pound, butter	
Amount of capital invested in dairies	
No. of males employed, farm work	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed in general mining	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed in logging camps	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed in saw mills	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed in manufacturing enterprises, skilled labor	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed in manufacturing enterprises, common labor	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed, common labor, other than manufacturing	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of males employed in clerical positions	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of females employed in clerical positions	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of females employed in manufacturing enterprises	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of females employed as domestics	
Average number of hours employed per day	
Average number of days employed per year	
Average wages paid per month	
No. of mechanics employed in building trades, stone cutters	
Average number of hours employed per day	

Average number of days employed per year	150
Average wages paid per month	$117
No. of mechanics employed in building trades, brick masons	12
Average number of hours employed per day	8
Average number of days employed per year	150
Average wages paid per month	$100
No. mechanics employed in building trades, plasterers	3
Average number of hours employed per day	8
Average number of days employed per year	75
Average wages paid per month	$75
No. mechanics employed in building trades, carpenters	41
Average number of hours employed per day	9
Average number of days employed per year	100
Average wages paid per month	$60
No. of saw mills in operation	10
Daily capacity of same	200,000 ft.
Average actual daily output of same	30,000 ft.
Amount of capital invested therein	$160,000
No. of shingle mills	10
Amount of capital invested	$10,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	1,709	1,701	3,410
No. of children enrolled in public schools	1,353	1,222	2,575
Average daily attendance	967	877	1,844
No. of children over 6 years of age not enrolled in any school during year	363	329	692
No. of children between 8 and 15 years of age attending school less than three months during year	145	115	260
No. of teachers employed during year	37	62	99
No. of teachers employed in private schools during year	3	9	12

Average monthly salary paid male teacher during year	$40 80
Average monthly salary paid female teacher during year	$35 88
Estimated value of school houses, including grounds	$134,150 00
Estimated value of school furniture	$11,384 00
Estimated value of apparatus, including maps, charts, etc	$3,631 00
Estimated value of libraries	$327 00
Total value of all school property	$149,492 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$63,319 00
Amount of school district bonds outstanding at close of school year	$91,500 00
Average number of days school was maintained during year	89
No. of school districts in county	60
No. of graded schools in county	5
No. of private schools taught in county during year	6
No. of school houses built during year	1
No. of school houses now in county	60
Total seating capacity of all school houses in county	3,492
No. of districts in county not supplied with school houses	3

WAHKIAKUM COUNTY.

Wahkiakum county has in round numbers about 216,000 acres of land. It is bounded on the north by Pacific and Lewis counties; on the south by the Columbia river, on which river it has a water frontage of about 30 miles; on the east by Cowlitz county, and on the west by Pacific county. The uplands are covered with dense forests of valuable timber, consisting of yellow fir, larch, cedar, spruce and hemlock. Its present transportation facilities are entirely by steamers plying the Columbia river, no railroad having as yet penetrated the county.

The principal industry of the county is fishing, which gives employment to a large number of men. There are a number of thrifty towns in the county. Eagle Cliff, Eureka, Waterford, Brookfield, Pillar Rock and Bay View are noted chiefly for their large fish canneries, the output of which, during the past year, amounted to 128,500 cases of salmon.

The farm products of the county are chiefly hay, vegetables and butter, which find a ready market at Portland, Oregon.

Cathlamet, situated on the Columbia river, is the county seat, and has a population of about 500.

No. of acres land in county	216,000
No. of acres land taken up under various laws, including grants and reservations	186,706
No. of acres land remaining to be taken up under laws of the United States	29,294
No. of acres granted lands for sale by the State of Washington	23,622
No. of acres granted lands for sale by Northern Pacific Railroad Co	13,991
No. of farms	212
No. of acres bottom land	4,500
No. of acres timber land	102,000
No. of acres under cultivation	3,550
No. of acres potatoes	425
Average yield per acre	200 bush.
No. of acres fruit	120
No. of acres other products, hay and garden	3,000
No. of pounds of wool produced	1,340
No. of dairies	37
No. of cows furnishing milk therefor	371
Average price for dairy products per pound, butter	20c.
Amount of capital invested in dairies	$15,500
No. of males employed, farm work	200
Average number of hours employed per day	10
Average number of days employed per year	180
Average wages paid per month	$22
No. of males employed in logging camps	250
Average number of hours employed per day	10
Average number of days employed per year	180

Average wages paid per month	$55
No. of males employed in saw mills	6
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$40
No. of males employed in manufacturing enterprises, skilled labor	40
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$70
No. of males employed in manufacturing enterprises, common labor	341
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$40
No. of males employed, common labor, other than manufacturing	696
Average number of hours employed per day	10
Average number of days employed per year	130
Average wages paid per month	$31
No. of males employed in clerical positions	13
Average number of hours employed per day	10
Average number of days employed per year	110
Average wages paid per month	$60
No. of females employed in manufacturing enterprises	6
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$40
No. of females employed as domestics	20
Average number of hours employed per day	12
Average number of days employed per year	300
Average wages paid per month	$12
No. of saw mills in operation	1
Daily capacity of same	20,000 ft.
Average actual daily output of same	15,000 ft.
Amount of capital invested therein	$5,000
No. of canneries in operation	7
Daily capacity of same	52,000 cases.
Output for 1895	128,500 cases.
Amount of capital invested	$360,000
No. of tons fish shipped	300
Value of same	$18,000
No. of fishermen employed	335
Stave and heading factory in operation	1
Daily capacity of same barrel sets,	150
Output for 1895 barrel sets.	22,500
Amount of capital invested	$4,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	433	413	846
No. of children enrolled in public schools	297	293	590
Average daily attendance	228	212	440
No. of children between 8 and 15 years of age attending school less than three months during year	23	15	38
No. of teachers employed during year	17	17	34

Average monthly salary paid male teacher during year	$41 50
Average monthly salary paid female teacher during year	$36 41
Estimated value of school houses, including grounds	$8,727 00
Estimated value of school furniture	$1,605 00
Estimated value of apparatus, including maps, charts, etc	$1,157 00
Estimated value of libraries	$15 00
Total value of all school property	$11,504 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$478 50

Amount of school district bonds outstanding at close of school year	$2,200 00
Average number of days school was maintained during year	92
No. of school districts in county	22
No. of school houses in county	22
Total seating capacity of all school houses in county	619

WALLA WALLA COUNTY.

This county, one of the richest east of the Cascade mountains, was duly established in 1854, and at that time was a vast inland empire, spanning from the Cascades to and even beyond the Rocky mountains. It was then known as Wailatpu, but in 1859 the name was changed to Walla Walla, signifying in the Cayuse Indian tongue, which tribe then inhabited the county, "many waters." The name was very appropriate, for the valley, nestled at the foothills of the sombre Blue mountains, is fairly chequered with many sparkling streams, which, like silvery threads, course through the lovely valley and finally find seclusion in the bosom of the majestic Columbia river.

The advent of settlement has narrowed down the area of the county by the creation from time to time of new sub-divisions, until it now contains about 2,000 square miles; but even now it can boast a greater population and more wealth than it had in the days of old, when its size was simply prodigious.

The early settlers gave no thought to farming, deeming the soil too light and ashy. Stock raising was their chief occupation, and many became very wealthy from the industry. Most men of the early days, however, depended for fortune upon the mining camps, and while some met with astonishing success, others suffered bitter disappointment. Those who claimed land and built homes chose the more wisely, for it soon was learned that the land was fertile and would produce from 20 to 60 bushels of wheat per acre. It will not only yield abundant harvests of wheat, but also of oats, barley, flax, sugar beets, alfalfa, and vegetables in profusion, and that, too, of every name and description. Later the fruit industry began to receive attention, till to-day Walla Walla county supplies the north of Idaho, Montana, Dakota and Minnesota with the finest and most luscious fruits that grow beneath the canopy of heaven. Small fruits, such as strawberries and raspberries, ripen early and annually bear immense crops. Strawberries especially are shipped in carloads to distant states and are the source of a handsome revenue.

Once a great bunch grass country, Walla Walla has been converted into one immense wheat field, interspersed with fine orchards, lovely vineyards, prolific gardens, with here and there a timber culture; but the bunch grass, like the Indians and the coyotes, has passed on beyond the vanguard of civilization.

The winter season here is mild and of short duration. Indeed, sometimes it is hard to tell where the autumn has ended and spring begun, so mild has been the intervening winter. Climatic conditions seem to perpetuate the fertility of the soil, for where the land has been successfully tilled for 25 years without fertilizer, there seems to be no shrinkage in its productiveness, and failure of a single crop was never known.

Bee culture is attended with marked success. Mixed farming is pursued to some extent, and is growing, but as yet the export of wheat yields the largest returns, and may continue to do so for some years, though the time may come when sugar will be king, for soil and climate are exceedingly well adapted to the propagation of the succulent sugar beet.

The fuel supply of the county is largely derived from the Blue mountains. In early days every stream was fringed with timber, but most of it was long since cleared away. The mineral resources of Walla Walla county are still hidden; for, although indications of gold, silver and coal have been found, these never have been fully tested or developed.

Walla Walla city is the metropolis and seat of government of the county whose name it shares, and has been appropriately christened "the garden city" of the state. It is a charming city of pleasant homes, palatial residences and public buildings. It has a population of about 8,000, or about one-half the population of the entire county.

Besides the city of Walla Walla, with its numerous churches, public schools and Whitman College—a source of great pride—there is also the city of Waitsburg, and the towns of Prescott, Wallula, Dixie and Clyde. About 260 miles of railroad traverse the county, affording outlet to the world's markets by three different routes and in as many separate directions.

No. of acres land in county	834,500
No. of acres land taken up under various laws, including grants and reservations	701,572

No. of acres land remaining to be taken up under laws of the United States	132,928
No. of acres granted lands for sale by the State of Washington	63,822
No. of acres granted lands for sale by Northern Pacific Railroad Co	117,352
No. of farms	1,681
No. of acres upland	818,591
No. of acres bottom land	9,764
No. of acres timber land	6,145
No. of acres under cultivation	277,821
No. of acres summer fallow	111,000
No. of acres irrigated	10,498
No. of miles irrigating ditches	87
No. of acres wheat	90,312
Average yield per acre	24 bush.
No. of acres oats	2,854
Average yield per acre	44 bush.
No. of acres barley	13,980
Average yield per acre	35 bush.
No. of acres corn	654
Average yield per acre	30 bush.
No. of acres rye	1,435
Average yield per acre	18 bush.
No. of acres potatoes	412
Average yield per acre	225 bush.
No. of acres fruit, bearing	1,062
No. of acres other products	1,800
No. of pounds of wool produced	150,300
No. of dairies	19
No. of cows furnishing milk therefor	262
Average price for dairy products per pound, butter	23c.
Amount of capital invested in dairies	$10,815
No. of males employed, farm work	568
Average number of hours employed per day	11
Average number of days employed per year	217
Average wages paid per month	$21
No. of males employed in logging camps	15
Average number of hours employed per day	11
Average number of days employed per year	165
Average wages paid per month	$26
No. of males employed in manufacturing enterprises, skilled labor	72
Average number of hours employed per day	10
Average number of days employed per year	249
Average wages paid per month	$72
No. of males employed in manufacturing enterprises, common labor	121
Average number of hours employed per day	10
Average number of days employed per year	169
Average wages paid per month	$42
No. of males employed, common labor, other than manufacturing	610
Average number of hours employed per day	10
Average number of days employed per year	151
Average wages paid per month	$27
No. of males employed in clerical positions	120
Average number of hours employed per day	13
Average number of days employed per year	310
Average wages paid per month	$40
No. of females employed in clerical positions	15
Average number of hours employed per day	12
Average number of days employed per year	310
Average wages paid per month	$38
No. of females employed in manufacturing enterprises	12
Average number of hours employed per day	10

Average number of days employed per year	90
Average wages paid per month	$27
No. of females employed as domestics	125
Average number of hours employed per day	12
Average number of days employed per year	270
Average wages paid per month	$20
No. of mechanics employed in building trades, stone cutters	6
Average number of hours employed per day	10
Average number of days employed per year	100
Average wages paid per month	$100
No. of mechanics employed in building trades, brick masons	9
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$125
No. of mechanics employed in building trades, plasterers	5
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$125
No. of mechanics employed in building trades, carpenters	50
Average number of hours employed per day	10
Average number of days employed per year	150
Average wages paid per month	$50
No. of flour mills in operation	6
Daily capacity of same	1,050 bbls.
Amount of capital invested	$210,000
Output for 1895	260,000 bbls.
Quantity of product consumed in state	156,000 bbls.
Quantity of product exported from state	104,000 bbls.
No. of breweries in operation	2
Daily capacity of same	72 bbls.
Amount of capital invested	$160,000
Output for 1895	6,000 bbls.
No. of wood working factories in operation	2
Amount of capital invested	$12,000
No. of other factories in operation	3
Amount of capital invested	$66,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	2,123	2,175	4,298
No. of children enrolled in public schools	1,779	1,711	3,490
Average daily attendance	1,047	1,010	2,057
No. of children over 6 years of age not enrolled in any school during year	204	287	491
No. of children between 8 and 15 years of age attending school less than three months during year	67	102	169
No. of teachers employed during year	34	65	99

Average monthly salary paid male teacher during year	$56 25
Average monthly salary paid female teacher during year	$42 75
Estimated value of school houses, including grounds	$145,525 00
Estimated value of school furniture	$12,625 00
Estimated value of apparatus, including maps, charts, etc	$2,870 00
Estimated value of libraries	$960 00
Total value of all school property	$161,980 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$50,560 00
Amount of school district bonds outstanding at close of school year	$43,650 00
Average number of days school was maintained during year	122
No. of school districts in county	57
No. of graded schools in county	7
No. of private schools taught in county during year	6

No. of school houses built during year	None.
No. of school houses now in county	54
Total seating capacity of all school houses in county	3,844
No. of districts in county not supplied with school houses	6

WHATCOM COUNTY.

Whatcom county is the most northwesterly county in the United States. It is bordered on the north by British Columbia, on the east by the summit of the Cascade mountains, on the south by Skagit county, and her western boundary is separated from British possessions only by the intervention of Puget Sound and the Gulf of Georgia. The county embraces more than 2,000 square miles of territory, divided by mountain ranges and drainage into three natural subdivisions: The western or agricultural and timber portion; the central or Baker river section, and eastern or Skagit river country.

A range of mountains, intersecting the international boundary line—or northern boundary of the county—about 55 miles east of Whatcom and seven miles east of Chilliwack lake, extends southeasterly about nine miles. It then divides into three chains: One extending westerly along the northern side of the county and north of the North Fork of the Nooksack river for about 35 miles, the principal peaks being Root, Church and Bald mountains. The Hannegan pass crosses this range at an elevation of 5,400 feet, about five miles west of the union of the three mountain chains or ranges. The second, or Baker range, extends S. 52° W., terminating in the Sister peaks, on the Whatcom-Skagit county line. The prominent points of this range are Ruth mountain, Mounts Baker and Shuksan and the Sister peaks. Two passes cross this range, the Lysle pass, elevation 4,700 feet, about three miles from the union of the three ranges and two miles east of Hannegan pass, and the Austin pass, elevation 5,270 feet, about 12 miles southwesterly from the Skagit pass. This range has a spur extending nearly south from Mount Baker to the Whatcom-Skagit county line, between which and the Sister peaks are the headwaters of the South Fork of the Nooksack river. This spur is crossed by Bellingham pass, elevation 4,380 feet, leading into the Baker river valley. Between the Baker range and the range extending along the northern side of the county is all that section drained by the North, Middle and South Forks of the Nooksack river.

The North Fork, heading at the northeast of Mount Shuksan, flows to the northwest about five miles to its union with Ruth creek; its course is then nearly west about thirty miles to the foot of Columbia valley, where it bears to the south to its confluence with the South Fork, eight miles farther. From Ruth creek, for about eight miles, the stream flows through an open, smooth valley from one to one and one-half miles in width and from 2,500 to 3,000 feet above sea level. The soil is first rate and fine timber abounds. At eight miles below Ruth creek the stream enters a narrow and rugged canyon, through which it passes for about three-fourths of a mile and falls to an elevation of 1,400 feet.

The South Fork of the Nooksack, after flowing southerly to the eastward of the Sister peaks, enters Skagit county and again reenters Whatcom county about twelve or thirteen miles from its confluence with the North Fork. The upper portion is narrow and rough, but the lower fifteen miles of the stream is through a pleasing valley from two to three miles wide and all good land, rich with promise of agricultural wealth.

The Middle Fork rises at the foot of a glacier, about two miles south and a little west of the summit of Mount Baker, and only one-quarter of a mile from the source of the South Fork. It flows nearly N. 70° W. through a narrow valley to within a few miles of where it enters the North Fork, about three miles from its union with the South Fork.

The country to the west of this, drained principally by the Nooksack river and secondarily by California and Dakota creeks in the northwest, by Whatcom, Padden and Chuckanut creeks in the southwest, and by Samish river in the south, is the known portion of the county.

As a whole it is level, still its surface is broken enough to afford excellent drainage. Between Whatcom and Blaine the ground attains, by an almost imperceptible rise, an elevation of some 200 feet, while to the east of Bellingham Bay the rise is more abrupt, Whatcom lake being 318, Padden lake 437, and Samish lake 285 feet above the bay, and but a few miles distant. The soil of this section is of four classes, viz.: Marsh lands, bottom, second bottom and ridge or fir lands. The marsh land is not very plentiful. In its wild state it supports a thick growth of brush. It is quite readily cleared, but must be drained before it can be cultivated. The bottom land lies principally along the Nooksack river; still, a goodly portion is to be found in other parts of the county. The soil is heavy and rich with practically no bottom. It produces as fine vegetables, oats, hay and small fruits, berries, etc., as are to be found anywhere. The second bottom is a higher, lighter and more sandy land, and is the fruit land of the county, while it also produces excellent vegetables. The ridge or fir land is the dryest and poorest of the land naturally, but if it is irrigated during the dry portion of the year it will be found to yield abundantly. It furnishes the fir timber of the country, while the second bottom usually produces the best cedar.

The third mountain range extends nearly S. 23° W. and terminates at Sauk mountain, in Skagit county. Nearly all of its peaks are perpetually covered with snow, and glaciers are to be found in every direction. A short distance below the summits many beautiful, small, blue lakes are to be found, and numerous streams which are simply a succession of waterfalls. Between this range and the Baker range is the second division of the county, or the portion drained by Baker river. Baker river heads very near the source of Ruth creek—a branch of the North Fork of the Nooksack—and after flowing in a general southwesterly course past the east side of Mount Shuksan for about fifteen miles, enters Baker lake, elevation 1,000 feet, about two miles long by one and one-half miles wide, and hemmed in by high mountains on either side. The valley is narrow to within about four miles above the lake, and below the lake the valley is again wide for seven or eight miles to the county line, the river flowing along the eastern side, while on the western side is a considerable amount of excellent country which is drained by small tributaries of the Baker.

This section is separated from the eastern portion of the county—that drained by the Skagit river and its numerous tributaries—by a spur or lesser range of mountains. This portion of the county is noted chiefly for its mineral stores, though it also produces a wealth of timber. All this portion of the county is mountainous, and is the delight of the sportsman and angler.

The twin cities of New Whatcom and Fairhaven, surrounding Bellingham Bay, form the commercial center of Whatcom county, and are reached by the Great Northern and Bellingham Bay & British Columbia Railways, the latter being a local road connecting at

Sumas with the Canadian Pacific Railway. In harbor facilities these cities are unexcelled. Bellingham Bay is perfectly landlocked and affords safe anchorage for seagoing vessels. The inflow of fresh water from Nooksack river affords freedom from the ravages of the teredo. Large manufacturing interests, particularly in the manufacture of lumber and shingles, are centered here. Her fishing interests, already pretentious, are rapidly growing. The output of the Blue Canyon coal mines, located on the banks of Lake Whatcom but a few miles inland, find outlet to the sea at this port over a local line of railway. The county seat is located at New Whatcom, finding accommodations in a beautiful court house that is the county's pride.

The bay cities have ample public school accommodations, and a state normal school, located on a commanding site between the two cities, is now in course of erection.

Whatcom county is populated with intelligent, progressive people, as attested by the excellent system of public highways now built or in course of construction. The trunk lines diverge from the county capital to the several settlements of the interior, and latterals are being constructed to complete the system, which will provide Whatcom county with the best system of public highways to be found in Western Washington.

Important towns of the county in addition to those mentioned, are Blaine, on Drayton harbor at the international boundary line; Sumas, at the north center of the county, the northern terminus of the Seattle, Lake Shore & Eastern Railway, which crosses the west center of the county; Lynden, in the Nooksack valley, 14 miles from Bellingham Bay; Ferndale, 9 miles from Bellingham Bay, also in Nooksack valley; Enterprise, 4 miles north of Ferndale; Everson, Goshen, Wickersham, Nooksack City and Clearbrook, each having important interests of its own in the manufacture of lumber and shingles, and in agriculture.

No. of coal mines in operation	4
No. of employes	59
No. of days employed annually	312
No. of hours employed per day	10
Wages paid per day	$2 50
Total product per year	28,764 tons.
No. of acres land in county	1,405,680
No. of acres land taken up under various laws, including grants and reservations	401,320
No. of acres land remaining to be taken up under laws of the United States	1,004,360
No. of acres granted lands for sale by the State of Washington	77,670

No. of acres oats	4,000
Average yield per acre	50 bush.
No. of acres barley	900
Average yield per acre	40 bush.
No. of acres hops	500
Average yield per acre	1,500 lbs.
No. of acres sugar beets	100
Average yield per acre	18 tons.
No. of acres potatoes	1,500
Average yield per acre	220 bush.
No. of pounds of wool produced	14,000
No. of males employed in logging camps	125
Average number of hours employed per day	10
Average number of days employed per year	190
Average wages paid per month	$40
No. of males employed in saw and shingle mills	1,172
Average number of hours employed per day	10
Average number of days employed per year	190
Average wages paid per month	$40
No. of saw mills in operation	11
Average actual daily output of same	226,000 ft.
No. of shingle mills in operation	45
Estimated output of lumber for 1895	37,290,000 ft.
Estimated output of shingles for 1895	488,600,000
No. of cars of shingles shipped	3,107
Area of cod and halibut banks along northwest coast	35,000 sq. mi.
No. of establishments for curing codfish	1
No. of fish canneries in Whatcom county operated in 1895	3
Output in cases of 48 cans each	54,600
Amount paid to fishermen living in Whatcom county in 1895, from all sources	$80,000
No. of pounds fresh fish shipped out of county not canned, 1895	525,000
No. of pounds fresh fish consumed in county, 1895	60,000
No. of salmon caught in county for canneries, 1895	875,000
No. of men employed in fishing during all or part of 1895	500

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	2,564	2,336	4,900
No. of children enrolled in public schools	2,005	1,984	3,989
Average daily attendance	1,381	1,372	2,753
No. of children over 6 years of age not enrolled in any school during year	306	273	579
No. of children between 8 and 15 years of age attending school less than three months during year	143	120	263
No. of teachers employed during year	54	85	139
No. of teachers employed in private schools during year	2	4	6

Average monthly salary paid male teacher during year	$55 56
Average monthly salary paid female teacher during year	$50 24
Estimated value of school houses, including grounds	$206,725 00
Estimated value of school furniture	$21,015 00
Estimated value of apparatus, including maps, charts, etc	$5,683 00
Estimated value of libraries	$958 00
Total value of all school property	$234,381 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$65,615 00
Amount of school district bonds outstanding at close of school year	$159,700 00
Average number of days school was maintained during year	105
No. of school districts in county	72
No. of graded schools in county	6
No. of private schools taught in county during year	8

No. of school houses built during year	1
No. of school houses now in county	80
Total seating capacity of all school houses in county	5,138
No. of districts in county not supplied with school houses	2

WHITMAN COUNTY.

Whitman county was established in 1871. It is bounded on the north by Spokane and Lincoln counties, on the south by Garfield and Columbia counties and Snake river, on the east by the State of Idaho, and on the west by Adams and Franklin counties and the Palouse river. It is composed of an extensive upland plateau of rolling prairies. The general elevation is about 2,100 feet; the soil varying from a sandy to a heavy clayey loam of great fertility. In its natural state entirely covered with bunch grass, it produces under cultivation all the grasses and cereals common to Eastern Washington. Wheat, barley, oats, rye and flax are the principal cereals grown. Wheat yields from 20 to 40 bushels per acre; barley from 35 to 80 bushels per acre; oats from 40 to 100 bushels per acre, and flax from 12 to 25 bushels per acre. This discrepancy in yield is not the result of difference in years, but of varying locations. The poorer land frequently gives better yields than are here denoted, but much of the land very rarely falls below the highest crop figures given.

Stock raising in the western and southern part of the county is an important and profitable industry, and the production of wool and hog raising are profitably pursued.

The elevated lands in the county raise the very best apples; winter varieties being of a quality to stand shipping to far eastern markets as late as June of the succeeding year. The orchards are prolific and if the acclimated varieties are planted, do not winter kill. These lands are equally as fit for the production of winter pears. Prunes and plums can also be successfully raised.

The price of land varies according to location. Improved land can be bought for from $8 to $25 per acre, and easy terms of payment can be obtained.

The county has excellent railroad facilities, being penetrated by the Northern Pacific and the O. R. & N. railroads, with a total of 280 miles of main track.

The population of the county is between 24,000 and 25,000, almost entirely engaged in agricultural pursuits. Colfax is the county seat, having a population of about 3,000. The state agricultural college and school of science, and agricultural experiment station are located at Pullman, a beautiful city situated on the Palouse river.

Whitman county has within her borders a number of flourishing towns, among which may be named Colfax, Pullman, Palouse, Oakesdale, Garfield, Farmington, Tekoa, Rosalia, Colton, Uniontown and Elberton.

No. of acres land in county	1,363,800
No. of acres land taken up under various laws, including grants and reservations	1,266,302
No. of acres land remaining to be taken up under laws of the United States	97,498
No. of acres granted lands for sale by the State of Washington	59,294
No. of acres granted lands for sale by the Northern Pacific Railroad Co	104,208
No. of farms	4,608
No. of acres upland	750,205
No. of acres bottom land	25,000
No. of acres timber land	3,000
No. of acres prairie land	359,822
No. of acres under cultivation	638,690
No. of acres summer fallow	200,000
No. of acres wheat	344,677
Average yield per acre	21 bush.
No. of acres oats	19,968
Average yield per acre	50 bush.
No. of acres barley	39,918
Average yield per acre	37 bush.
No. of acres corn, cut for fodder	2,210
No. of acres potatoes	7,932
Average yield per acre	90 bush.
No. of acres fruit	7,820
No. of acres other products	16,175
No. of pounds of wool produced	240,000
No. of dairies	100
No. of cows furnishing milk therefor	1,000
Average price of dairy products per pound, butter	25c.
No. of males employed in saw mills	20
Average number of hours employed per day	10
Average number of days employed per year	240
Average wages paid per month	$40
No. of males employed in manufacturing enterprises, skilled labor	150
Average number of hours employed per day	10
Average number of days employed per year	250
Average wages paid per month	$75
No. of males employed, common labor, other than manufacturing	600
Average number of hours employed per day	10
Average number of days employed per year	300
Wages paid per month, from	$20 to $60
No. of males employed in clerical positions	400
Average number of hours employed per day	9
Average number of days employed per year	300
Average wages paid per month	$60
No. of females employed in clerical positions	30

Average number of hours employed per day	9
Average number of days employed per year	280
Average wages paid per month	$50
No. of saw mills in operation	4
Daily capacity of same	20,000 ft.
Average actual daily output of same	15,000 ft.
Amount of capital invested therein	$35,000
No. of creameries	5
Average daily output of butter	400 lbs.
No. of flour mills in operation	12
Daily capacity of same	910 bbls.
Amount of capital invested	$205,000
Total output for 1895	105,000 bbls.
Quantity of product consumed in state	48,000 bbls.
Quantity of product exported from state	57,000 bbls.

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895,	4,516	4,240	8,756
No. of children enrolled in public schools	3,812	3,419	7,231
Average daily attendance	2,346	2,199	4,545
No. of children over 6 years of age not enrolled in any school during year	621	539	1,160
No. of children between 8 and 15 years of age attending school less than three months during year	357	321	678
No. of teachers employed during year	122	146	268
No. of teachers employed in private schools during year	4	21	25

Average monthly salary paid male teacher during year	$50 15
Average monthly salary paid female teacher during year	$42 93
Estimated value of school houses, including grounds	$269,276 00
Estimated value of school furniture	$33,756 00
Estimated value of apparatus, including maps, charts, etc	$18,178 00
Estimated value of libraries	$1,617 00
Total value of all school property	$322,827 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$126,525 00
Amount of school district bonds outstanding at close of school year	$179,695 00
Average number of days school was maintained during year	105
No. of school districts in county	148
No. of graded schools in county	15
No. of private schools taught in county during year	19
No. of school houses built during year	3
No. of school houses now in county	153
Total seating capacity of all school houses in county	9,634
No. of districts in county not supplied with school houses	2

YAKIMA COUNTY.

Yakima county is the center of the development of the most important of the irrigation enterprises of the State of Washington, and within its borders are exemplified the best results yet attained by tilling the soil with the aid of an artificial water supply. The mildness of its climate, the fertility of its soil, the great diversity of its crops and the wide areas susceptible of irrigation have for many years attracted the attention of home seekers, and in no section of the state has there been a greater development of purely agricultural resources. To the average farmer of the states east of the Rocky mountains it is not easy to convey a correct impression of the advantages of farming by means of irrigation. It is sufficient to say in this short review of the resources of Yakima county that no one at all familiar with irrigation conditions will deny that a certainty of crops, the great productiveness of volcanic soils, the diversity of fruits, grains and vegetables grown, present ideal conditions of farming which cannot be found in the older farming communities of the states.

Yakima county contains 5,580 square miles, or 3,547,800 acres. It reaches from the Columbia river on the east to the summit of the Cascade range on the west, and is broken on the north by the spurs and foothills of the mountains, while the southern portion extends in broad table lands and plains to the Simcoe range. The Yakima river, rising far to the north in several small lakes on the crest of the Cascades, flows diagonally across the width of this region with a general course from northwest to southeast. Numerous tributaries enter it principally from the west, the largest being the Natchez river, all having a rapid descent in broad valleys.

The western part of the county is characterized by low ridges of basalt, running in a general easterly and westerly course, and cut by the Yakima river. Between these ridges are fertile valleys, the Selah and Wenas the most northerly, then the Ahtanum and Moxee, and finally the river passes through the Rattlesnake Range in Union Gap and enters the broad Yakima prairie, which stretches westward for many miles to the foothills of the mountains, and eastward to the division between the Yakima valley and the great plains of the Columbia. The river follows this prairie for about 80 miles, turning gradually toward the east along the foot of the Simcoe range, and enters the Columbia river ten miles above the Snake, which joins it from the east.

The Columbia river, the fifth largest navigable river in the United States, borders the county for 80 miles. For more than 60 miles it runs between low banks, devoid of bluffs, the land rising gently on the west toward the low divide between the Columbia and Yakima valleys. This tract is practically a part of the plain of the Columbia, which forms so large a portion of central Washington. The near completion of the Cascade locks on the lower Columbia, upon which the government has been actively engaged for several years, will afford the county direct communication with tide water.

The western portion of the county reaches to the summit of the Cascade mountains. It is covered with a heavy growth of valuable timber—pine, fir, tamarack and spruce. The timber land comprises 943,000 acres.

The central part of the county along the Yakima river with its tributaries, and the eastern part along the Columbia river, comprise the irrigable lands, a portion of which have been reclaimed by irrigation. The total area of land now under canals is 139,410 acres. The total area of all irrigable lands in the county is 650,000 acres.

While there are many indications of mineral wealth within the borders of Yakima county, it is not the purpose of this sketch to make prominent that feature of its resources. The true wealth of the county lies in its agricultural possibilities. Without attempting to enter into a detailed description of all of the varieties of fruits grown in the county, it can be generally stated that apples, peaches, plums, prunes, cherries, apricots, grapes, pears and all of the small fruits are produced in perfection of size, color and flavor that warrants the assertion that they may be put in competition with the same fruits grown in other localities without fear of comparison.

Lands in Yakima county vary in price from $40 to $100 per acre, according to location and quality of soil. These prices include perpetual water rights in the irrigation canals from which water is supplied. The irrigation season opens in April and closes usually in October.

Some considerable government land is still open for settlers, as well as state lands for sale by the state, and railroad lands for sale by the Northern Pacific Railroad Company, as will be seen by the following table:

No. of acres land in county	3,547,800
No. of acres land taken up under various laws, including grants and reservations	1,427,385
No. of acres land remaining to be taken up under laws of the United States	2,120,414
No. of acres granted lands for sale by the State of Washington	228,349
No. of acres granted lands for sale by Northern Pacific R. R. Co.	666,098
No. of acres grazing lands	400,000
No. of acres timber land	943,000
No. of acres under cultivation	93,958
No. of acres irrigated	139,410
No. of miles of irrigating ditches	420
No. of acres wheat	19,524

Average yield per acre	25 bush.
No. of acres oats	6,465
Average yield per acre	50 bush.
No. of acres barley	1,000
Average yield per acre	45 bush.
No. of acres corn	5,515
Average yield per acre	45 bush.
No. of acres hops	3,124
Average yield per acre	1,700 lbs.
No. of acres in sorghum	640
Average yield per acre	150 gal.
No. of acres potatoes	4,088
Average yield per acre	225 bush.
No. of acres fruit	3,545
No. of acres other products, mostly hay	50,697
No. of pounds of wool produced	887,760
No. of dairies	29
No. of cows furnishing milk therefor	732
Average price for dairy products per pound butter, 20c.; cheese,	10c.
Amount of capital invested in dairies	$2,600
No. of creameries in operation	3
Daily capacity of each milk,	1,800 lbs.
No. of males employed, farm work	2,250
Average number of hours employed per day	10
Average number of days employed per year	232
Average wages paid per month	$24
No. of males employed in saw mills	35
Average number of hours employed per day	10
Average number of days employed per year	290
Average wages paid per month	$30
No. of males employed in manufacturing enterprises, skilled labor	55
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$75
No. of males employed in clerical positions	40
Average number of hours employed per day	10
Average number of days employed per year	300
Average wages paid per month	$55
No. of females employed in manufacturing enterprises	22
Average number of hours employed per day	10
Average number of days employed per year	90
Average wages paid per month	$25
No. of mechanics employed in building trades, stone cutters	10
Average number of hours employed per day	10
Average number of days employed per year	45
Average wages paid per month	$80
No. of mechanics employed in building trades, brick masons	12
Average number of hours employed per day	10
Average number of days employed per year	175
Average wages paid per month	$90
No. of mechanics employed in building trades, plasterers	20
Average number of hours employed per day	10
Average number of days employed per year	145
Average wages paid per month	$80
No. of mechanics employed in building trades, carpenters	240
Average number of hours employed per day	10
Average number of days employed per year	145
Average wages paid per month	$60
No. of saw mills in operation	4
Daily capacity of same	40,000 ft.

Average actual daily output of same	20,000 ft.
Amount of capital invested therein	$10,000
No. of flour mills in operation	2
Daily capacity	200 bbls.
Output for 1895	40,000 bbls.
Amount of capital invested	$25,000

	Male.	*Fem.*	*Total.*
No. of children between 5 and 21 years of age in county June 1, 1895	1,586	1,510	3,096
No. of children enrolled in public schools	1,065	1,113	2,178
Average daily attendance	726	768	1,494
No. of children over 6 years of age not enrolled in any school during year	227	153	380
No. of children between 8 and 15 years of age attending school not less than three months during year	131	101	232
No. of teachers employed during year	23	49	72
No. of teachers employed in private schools during year	3	6	9

Average monthly salary paid male teacher during year	$54 00
Average monthly salary paid female teacher during year	$50 00
Estimated value of school houses, including grounds	$85,367 00
Estimated value of school furniture	$12,507 00
Estimated value of apparatus, including maps, charts, etc	$3,693 00
Estimated value of libraries	$279 00
Total value of all school property	$101,846 00
Amount of indebtedness of school districts, exclusive of bonded indebtedness	$15,858 00
Amount of school district bonds outstanding at close of school year	$63,000 00
Average number of days school was maintained during year	101
No. of school districts in county	46
No. of graded schools in county	3
No. of private schools taught in county during year	8
No. of school houses built during year	10
No. of school houses now in county	43
Total seating capacity of all school houses in county	2,329
No. of districts in county not supplied with school houses	5

VALUE OF LIVE STOCK.

TABLE showing number and value of live stock by counties, as shown by assessors' returns and as equalized by state board of equalization.

Counties.	*Horses, mules, and asses.*		*Cattle.*		*Sheep.*		*Hogs.*	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Adams	7,787	$99,129	8,205	$93,127	15,700	$14,287	1,814	$3,719
Asotin	5,068	64,516	5,651	64,139	3,201	2,913	3,261	6,685
Chehalis	1,560	45,084	5,765	81,402	1,468	1,336	2,209	4,528
Clallam	523	15,115	1,489	21,025	785	714	790	1,620
Clarke	3,183	91,989	8,009	113,087	1,370	1,247	3,324	6,814
Columbia	6,717	101,830	5,153	58,487	8,079	7,352	6,269	12,851
Cowlitz	1,739	50,257	5,331	75,274	879	800	2,619	5,369
Douglas	10,892	138,655	11,288	128,119	6,605	6,011	2,798	5,736
Franklin	4,922	62,657	850	9,648	12,200	11,102	81	166
Garfield	6,511	82,885	6,330	71,846	9,985	9,086	4,258	8,729
Island	463	13,381	848	11,974	836	761	476	976
Jefferson	242	6,994	1,044	14,741	20	18	180	369
King	3,714	107,335	7,982	112,706	1,574	1,432	2,271	4,656
Kitsap	141	4,075	495	6,989	76	69	200	410
Kittitas	5,447	82,577	8,580	97,383	33,123	30,142	4,323	8,862
Klickitat	9,392	142,383	7,992	90,709	82,444	75,024	9,810	20,110
Lewis	1,360	39,304	4,439	62,679	876	797	3,171	6,501
Lincoln	18,031	229,535	14,700	166,845	8,535	7,767	6,324	12,964
Mason	575	16,618	1,577	22,267	241	219	302	619
Okanogan	4,621	58,825	6,732	76,408	1,290	1,174	669	1,371
Pacific	406	11,733	2,389	33,733	472	429	250	513
Pierce	3,886	112,305	6,646	93,842	2,122	1,931	2,872	5,888
San Juan	654	18,901	1,121	15,829	4,354	3,962	573	1,175
Skagit	2,862	82,712	5,512	77,829	1,098	999	1,340	2,747
Skamania	232	6,705	955	13,485	39	35	232	476
Snohomish	2,163	62,511	5,761	81,345	2,564	2,333	1,498	3,071
Spokane	12,919	195,852	12,798	145,257	497	452	8,923	18,292
Stevens	5,132	77,801	7,631	86,612	459	418	2,579	5,287
Thurston	1,923	55,575	5,639	79,623	932	848	1,152	2,362
Wahkiakum	305	8,815	2,148	30,330	335	305	713	1,462
Walla Walla	6,379	96,706	4,740	53,799	36,570	33,279	6,365	13,048
Whatcom	1,971	56,962	4,851	68,496	3,385	3,080	1,606	3,292
Whitman	20,960	317,754	14,591	165,608	39,396	35,850	15,127	31,010
Yakima	8,947	135,637	7,937	90,085	79,776	72,596	2,839	5,820
Totals	161,627	$2,693,113	195,179	$2,414,728	361,286	$328,768	101,218	$207,498

REAL AND PERSONAL PROPERTY AND RAILROAD TRACKS IN STATE.

ABSTRACT showing total amount of real and personal property and railroad tracks in the State of Washington, as equalized by the county and state boards of equalization, also showing amount of state tax and state school tax to be raised by each county for the year 1895.

Counties.	*Total value real property.*		*Total value of personal property.*		*Total value railroad tracks.*		*Total value of real and personal property, including railroad tracks.*		*Total amount of state tax to be paid by each county......*	*Total amount of state school tax to be paid by each county......*
	As equalized by county board.	As equalized by state board.	As equalized by county board.	As equalized by state board.	As equalized by county board.	As equalized by state board.	As equalized by county board.	As equalized by state board.		
Adams	$1,231,724	$1,258,773	$366,423	$368,855	$351,465	$324,224	$1,949,612	$1,951,852	$5,856	$6,181
Asotin	480,994	288,339	105,426	110,199			586,420	398,538	1,196	1,262
Chehalis	4,883,664	4,659,338	670,873	672,663	280,811	296,568	5,335,348	5,628,569	16,886	17,824
Clallam	2,454,575	1,886,691	139,468	139,055			2,594,043	2,025,746	6,077	6,415
Clarke	3,926,707	3,874,349	519,169	539,429	25,263	34,799	4,471,139	4,448,577	13,346	14,088
Columbia	2,381,238	2,340,051	645,290	656,401	280,800	277,377	3,307,328	3,273,829	9,821	10,367
Cowlitz	2,669,594	2,448,525	332,324	347,390	174,586	183,014	3,176,504	2,978,939	8,937	9,434
Douglas	*983,862*	*1,466,997*	*421,407*	*402,386*	*440,821*	*451,120*	1,846,090	2,320,503	6,961	7,318
Franklin	390,764	461,384	151,254	195,028	369,395	373,386	911,413	1,029,798	3,089	3,261
Garfield	989,000	981,302	274,069	282,589	74,385	73,842	1,334,454	1,337,733	4,013	4,236
Island	891,168	1,062,998	171,666	164,223			1,062,834	1,227,221	3,682	3,886
Jefferson	2,573,637	2,297,950	357,010	354,812	93,578	69,492	3,024,225	2,722,254	8,167	8,619
King	37,005,500	36,248,415	4,826,100	4,800,777	1,197,924	1,211,423	43,029,524	42,260,615	126,782	133,825
Kitsap	1,354,780	1,294,799	393,873	395,595			1,748,653	1,690,394	5,071	5,353
Kittitas	2,559,445	2,574,451	818,236	805,689	665,751	675,980	4,043,432	4,056,120	12,168	12,844
Klickitat	1,233,963	1,010,072	439,731	428,353	7,140	6,414	1,680,834	1,444,839	4,334	4,575
Lewis	3,696,557	3,878,945	391,645	398,001	244,788	309,710	4,332,990	4,586,659	13,760	14,524
Lincoln	3,741,694	3,539,229	890,660	892,308	870,277	806,576	5,502,631	5,238,113	15,714	16,587
Mason	1,437,500	1,959,562	122,020	113,108	106,518	105,162	1,666,038	2,177,832	6,533	6,896
Okanogan	282,751	268,327	310,952	302,181	76,980	91,368	670,683	661,876	1,986	2,096
Pacific	1,891,330	2,143,893	306,996	317,452	191,479	174,194	2,389,805	2,635,539	7,907	8,346
Pierce	30,758,253	28,682,109	3,105,066	3,086,443	610,652	730,858	34,473,971	32,499,410	97,498	102,915
San Juan	773,982	731,135	102,937	100,516			876,919	831,651	2,495	2,634
Skagit	3,781,618	3,814,541	544,499	529,432	470,175	490,544	4,796,292	4,834,517	14,504	15,310
Skamania	277,906	256,290	57,981	60,879	3,900	6,414	339,787	323,583	970	1,024
Snohomish	5,558,097	6,660,380	977,862	964,427	747,950	845,498	7,283,909	8,470,305	25,411	26,823
Spokane	17,642,198	17,058,233	2,740,920	2,669,757	1,158,705	1,274,751	21,541,823	21,002,741	63,008	66,508
Stevens	971,990	1,018,523	329,306	326,331	513,627	563,699	1,814,923	1,908,553	5,726	6,044
Thurston	4,450,537	4,406,747	564,257	571,450	354,441	408,455	5,369,235	5,386,652	16,160	17,058
Wahkiakum	568,525	619,766	76,575	84,308			645,100	704,074	2,112	2,229
Walla Walla	5,009,223	5,801,409	1,577,458	1,548,587	905,128	938,196	7,491,809	8,288,192	24,865	26,246
Whatcom	9,491,462	8,206,747	568,217	572,644	413,941	407,001	10,473,620	9,186,392	27,559	29,090
Whitman	7,289,057	8,731,888	2,205,670	2,266,779	1,741,648	1,289,423	11,236,375	12,288,090	36,864	38,912
Yakima	2,938,977	3,199,958	635,813	671,660	546,092	499,033	4,120,882	4,370,651	13,112	13,840
Totals	$166,072,272	$165,132,116	$26,138,153	$26,139,710	$12,918,220	$12,918,551	$205,128,645	$204,190,377	$612,570	$646,600

POST OFFICES IN THE STATE OF WASHINGTON.

ADAMS COUNTY.

Bemis, Delight, Fletcher, Griffith, Hatton, Lind, Paha, Ritzville, Washtucna, Willis.

ASOTIN COUNTY.

Anatone, Asotin, Craig, Hanson Ferry.

CHEHALIS COUNTY.

Aberdeen, Artic, Axford, Canto, Cedarville, Connie, Copalis, Cosmopolis, Damon, Elma, Granville, Hoquiam, Humptulips, Juno, Laidlaw, London, Markham, Melbourne, Montesano, Morris, Oakville, Ocosta, Otter, Porter, Queets, Quinaiult, Satsop, Summit, Vesta, Westport, Wynooche.

CLALLAM COUNTY.

Albright, Beaver, Blyn, Boston, Bucyrus, Clallam, Collins, Defuca, Dungeness, East Clallam, Exa, Fairholme, Forks, Gettysburg, Hoko, Lapush, McDonald, Neahbay, Ozette, Piedmont, Port Angeles, Port Crescent, Port Williams, Pysht, Quillayute, Rena, Royal, Seguin, Shuwah, Suez, Swan, Tatoosh, Twin, Tyee, Washington Harbor, Wineton.

CLARKE COUNTY.

Amboy, Barberton, Battleground, Brush Prairie, Camas, Etna, Felida, Fisher, Hayes, Hockinson, Hopewell, Lacenter, Lewisville, Manor, Orchards, Pioneer, Proebstel, Ridgfield, Roxwell, Sara, Vancouver, View, Washougal, Yacolt.

COLUMBIA COUNTY.

Alto, Covello, Dayton, Huntsville, Marengo, Perry, Riparia, Starbuck.

COWLITZ COUNTY.

Caples, Carrolton, Castlerock, Eufaula, Catlin, Jackson, Kalama, Kelso, Kerns, Ladu, Lexington, Oakpoint, Olequa, Ostrander, Saint Helen, Sightly, Silverlake, Stella, Toutle, Tower, Tucker, Woodland.

DOUGLAS COUNTY.

Baird, Barry, Bridgeport, Buckingham, Coulee City, Douglas, Farmer, Hartline, Leahy, Lincoln, Orondo, Saint Andrews, Silico, Troy, Waterville, Wilsoncreek.

FRANKLIN COUNTY.

Pasco.

GARFIELD COUNTY.

Alpowa, Chard, Gould City, Ilia, Mayview, Pataha City, Peola, Ping, Pomeroy.

ISLAND COUNTY.

Clinton, Coupeville, Island, Langley, Newell, Oakharbor, San de Fuca, Sandypoint, Utsalady.

JEFFERSON COUNTY.

Bogacheil, Brinnon, Clearwater, Center, Duckabush, Evergreen, Hadlock, Junction City, Leland, Port Discovery, Port Ludlow, Port Townsend, Quilcene.

KING COUNTY.

Adelaide, Aquarium, Auburn, Ballard, Bellevue, Birch, Black Diamond, Black River, Boise, Bothell, Buenna, Burton, Cedar Mountain, Chautauqua, Cherryvalley, Christopher, Columbia City, Cumberland, Derby, Des Moines, Dunlap, Dwamish, Eaglegorge, Eddyville, Enumclaw, Fall City, Franklin, Fremont, Greenlake, Green River, Hot Springs, Houghton, Inglewood, Interbay, Issaquah, Juanita, Kangley, Kent, Kirkland, Latona, Lester, Lisabeula, Maplevalley, Maury, Maywood, Monohan, Newcastle, Northbend, Northrup, Novelty, O'Brien, Orillia, Osceola, Palmer, Pialschie, Pontiac, Preston, Ravenna, Redmond, Renton, Richmond, Ross, Seattle, Skykomish, Snoqualmie, Southpark, South Seattle, Starlake, Stuck, Sunnydale, Tolt, Vanasselt, Vashon, Vincent, Wabash, Wellington, West Seattle, Woodinville, Yessler.

KITSAP COUNTY.

Bangor, Breidablik, Bremerton, Brownsville, Charleston, Chico, Colby, Crystal Springs, Holly, Kingston, Madrone, Olalla, Pearson, Point no Point, Port Blakeley, Port Gamble, Port Madison, Port Orchard, Poulsbo, Reedville, Rolling Bay, Seabeck, Seabold, Silverdale, Tracyton, Vinland.

KITTITAS COUNTY.

Blewett, Chewaukum, Cle Elum, Easton, Ellensburg, Liberty, McCallum, Martin, Mission, Peshastin, Rock Island, Ronald, Roslyn, Teanaway, Thorp, Wenatchee.

KLICKITAT COUNTY.

Bickleton, Blockhouse, Canyon, Centerville, Cleveland, Columbus, Crimea, Dot, Fulda, Glenwood, Gilmer, Goldendale, Granddalles, Hartland, Lyle, Pleasant, Scott, Troutlake, White Salmon.

LEWIS COUNTY.

Adna, Agate, Ainslie, Alpha, Boisfort, Bremer, Centralia, Chehalis, Cinebar, Claquato, Cora, Cowlitz, Dryad, Eagleton, Ethel, Fulton, Gleneden, Harmony, Independence, Knab, Littlefalls, Mayfield, Mineral, Morton, Mossyrock, Napavine, Newaukum, Osborn, Pe Ell, Salkum, Silvercreek, Sulphur Springs, Swofford, Toledo, Vance, Verndale, Wildwood, Wilson, Windom, Winlock.

LINCOLN COUNTY.

Almira, Clark, Crabcreek, Crescent, Creston, Davenport, Earl, Edwall, Egypt, Harrington, Hesseltine, Lamona, Larene, Layton, Miles, Mohler, Mondovi, Moscow, Reardon, Rockdale, Sherman, Sprague, Waukon, Wilbur.

MASON COUNTY.

Allyn, Amelia, Arcadia, Ballow, Clifton, Detroit, Dewatto, Grove, Harrison, Hartstine Island, Hoodsport, Kamilche, Lake Cushman, Lilliwaup, Mason, Matlock, New Kamilche, Shelton, Twana, Union, Victor.

OKANOGAN COUNTY.

Alma, Chapaca, Chelan, Chelan Falls, Clover, Conconully, Entiat, Johns, Lakeside, Leavenworth, Loomis, Malott, Methow, Moore, Ophir, Oroville, Silver, Stehekin, Tonasket, Virginia City, Winthrop.

PACIFIC COUNTY.

Bay Center, Brooklyn, Ckinock, Fort Canby, Frances, Ilwaco, Knappton, Leban, Long Beach, Menlo, Nahcotta, Nasel, Nemah, Northcove, Oysterville, Riverside, Southbend, Sunshine, Tokeland, Willapa.

PIERCE COUNTY.

Alderton, Arletta, Artondale, Ashford, Balch, Bee, Benston, Bismark, Blanchard, Brooklyn, Buckley, Burnett, Carbonado, Dieringer, Eatonville, Edgewood, Elbe, Elgin, Excelsior, Fernhill, Fort Steilacoom, Gig Harbor, Glennis, Harts, Hillhurst, Kapousen, Lakebay, Lakepark, Lake Tapps, Lakeview, Larchmont, Leber, Longbranch, McMillin, Marion, Meridian, Meta, Midland, Orting, Parkland, Puyallup, Rigney, Rosedale, Roy, South Prairie, Springfield, Steilacoom, Sumner, Sylvan, Tacoma, Tanwax, Vaughn, Vaga, Wilkeson, Wollochet.

SAN JUAN COUNTY.

Argyle, Decatur, Deerharbor, Doebay, Eastsound, Edwards, Friday Harbor, Griswold, Lopez, Newhall, Olga, Orcas Island, Port Stanley, Richardson, Roche Harbor, Thatcher, Waldron, Westsound.

SKAGIT COUNTY.

Anacortes, Avon, Baker, Bayview, Belfast, Birdsview, Burlington, Clearlake, Cokedale, Conway, Edison, Fidalgo, Fidalgo City, Fir, Fredonia, Guemes, Hamilton, Laconner, Lookout, Lyman, McMurray, Mansford, Marblemount, Montborne, Mount Vernon, Nedrow, Padilla, Phelps, Prairie, Rosario, Samish, Sauk, Sedro, Skagit, Urban, Woolley.

SKAMANIA COUNTY.

Capehorn, Carson, Cascades, Chenowith, Drano, Homevalley, Marrs Landing, Mount Pleasant, Stevenson, Skye.

SNOHOMISH COUNTY.

Arlington, Bryant, Cedarhome, Darrington, Edmonds, Everett, Florence, Getchell, Goldbasin, Granite Falls, Haller, Hartford, Index, Lowell, Machias, Maltby, Marysville, Monroe, Montecristo, Mosher, Mukilteo, Norman, Orient, Oso, Pilchuck, Pueblo, Robe, Silverton, Snohomish, Stanwood, Stillaguamish, Sultan, Trafton, Tulalip, Wallace, Wana.

SPOKANE COUNTY.

Chattaroy, Cheney, Deepcreek, Dragoon, East Spokane, Elk, Fairfield, Hazzard, Hillyard, Jamieson, Latah, Lockwood, Marshall, Mead, Medical Lake, Mica, Milan, Mount Hope, Paradise, Peone, Plaza, Rockford, Spangle, Spokane, Spokane Bridge, Trent, Tyler, Waverly, Wayside, Welch, West Branch.

STEVENS COUNTY.

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THURSTON COUNTY.

Belmore, Bucoda, Delphi, Gate, Grandmound, Lacey, Littlerock, Meadow, Mima, Olympia, Rainier, Rochester, Sherlock, Tenino, Tumwater, Yelm.

WAHKIAKUM COUNTY.

Brookfield, Bugby, Cathlamet, Deepriver, Eaglecliff, Grays River, Oneida, Rosburg, Skamokawa, Waterford.

WALLA WALLA COUNTY.

Berryman, Clyde, College Place, Dixie, Eureka, Prescott, Touchet, Valley Grove, Waitsburg, Walla Walla, Wallula.

WHATCOM COUNTY.

Acme, Beach, Birchbay, Blaine, Blue Canyon, Chuckanut, Clearbrook, Custer, Delta, Deming, Enterprise, Everson, Fairhaven, Geneva, Gishen, Hardan, Haynie, Hillsdale, Hollingsworth, Keese, Laurel, Lawrence, Lemolo, Lynden, Licking, Marietta, Mountainview, New Whatcom, Nooksachk, Rome, Saxon, Semiahmoo, Silverbeach, Sumas City, Timon, Vanburen, Vanwyck, Vanzandt, Wahl, Welcome, West Ferndale, Wickersham, Wiser.

WHITMAN COUNTY.

Alki, Almota, Aurora, Belmont, Colfax, Colton, Diamond, Dunlor, Elberton, Endicott, Fallon, Farmington, Garfield, Guy, Hay, Hooper, Johnson, Oakesdale, Palouse, Pampa, Penawawa, Pine City, Pullman, Rosalia, Saint John, Staley, Steptoe, Sunset, Tekoa, Thornton, Uniontown, Wawawai, Wilcox, Winona.

YAKIMA COUNTY.

Ahtanum, Belma, Cowiche, Fort Simcoe, Kennewick, Kimona, Mabton, North Yakima, Parker, Prosser, Sunnyside, Tampico, Toppenish, Wenas, Yakima, Zillah.

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